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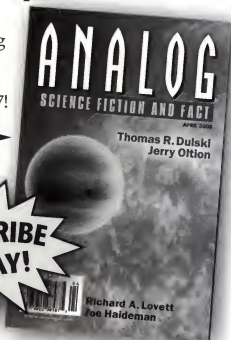
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AUGUST 2008

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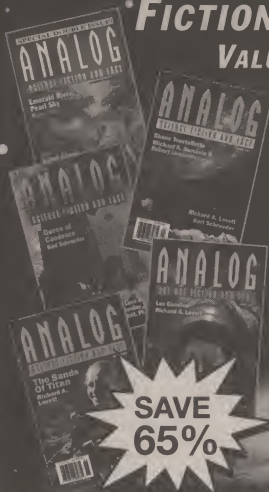
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SIR ARTHUR C. CLARKE: 1917–2008—A TRIBUTE

Arthur Charles Clarke was born in 1917 in England's West Country. A farmer's son but always academic, he discovered science fiction through the works of Olaf Stapledon, and through the American pulp magazines, especially *As-tounding*.

During the Second World War Clarke volunteered for the RAF and worked on pioneering developments in radar, a time he wrote about in his semi-autobiographical non-genre novel *Glide Path* (1963). The protagonist, West Country boy and whiz-kid radar engineer Alan Bishop, encounters a new level of reality: "He had become entangled in powers and instrumentalities that would surely shape the future" (chapter 30). Perhaps this wartime experience influenced Clarke's many tales of transcendence through technology, from *Childhood's End* to 2001 and beyond.

After the war, Clarke worked on a physics journal, completed a degree at King's College, London, and began to emerge as a significant writer of short fiction, technical articles, and popular non-fiction works on spaceflight. His first novel, *Prelude to Space* (1951), described a Moon project organized by British space enthusiasts—just like Clarke and his friends in the British Interplanetary Society!

As his writing career took off Clarke traveled widely, particularly to America, and he developed an interest in deep sea diving that would eventually lure him away

from England altogether. He would spend much of his life, and end it, in Sri Lanka, where he found personal happiness.

The fiction is what mattered most to me. Clarke became part of that wartime generation of SF authors who mapped our future in generally progressive and optimistic tones, through such classic books as *The Sands of Mars* and *A Fall of Moondust*.

But Clarke's non-fiction was just as influential. Carl Sagan testified how Clarke's depictions of interplanetary flight inspired him into a career in space science. And thanks to his technical foresight scientists and engineers took Clarke seriously. Clarke's fame as the originator of the concept of geostationary communications satellites is well known. It's no surprise that the Apollo astronauts chose to give their capsules names like *Odyssey*.

Clarke's career reached its apotheosis in 1968, with the novel and movie *2001: A Space Odyssey*. Today, four decades later, *2001* deservedly towers, Monolith-like, above the rest of the genre.

The project's first working title, *How the Solar System Was Won*, suggests that Clarke thought the movie would be a portrait of the near-future human colonization of space. But Stanley Kubrick was intrigued by another, much more complex part of Clarke's personality. As far back as the 1950s Clarke had shown himself to be drawn to metaphysical speculation. Clarke

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himself did not deny this, though he was dismissive of fakery and bad science, and he thought organized religion was a blight. The universe is full of wonder, he said, and no complete human being could fail to apprehend that fact. This is what Kubrick homed in on, and the movie became a portrait of human transcendence as astronaut Dave Bowman becomes the Star Child.

Clarke's work captures a key theme of our time. For us in the west, it's not long since Copernicus and Darwin demolished whatever certainty we might have had about our place in the universe. Clarke's work, filled with longing for contact and hope of transcendence, belongs to a peculiarly British strand of science fiction, running from H.G. Wells through Clarke's acknowledged key influence, Olaf Stapledon. But Stapledon was aloof and chilling; Clarke could make us cry.

After 2001, Clarke was probably the best-known SF writer on Earth. He was only just over fifty, and had a long career ahead of him yet. His next novel, *Rendezvous with Rama*, was another terrific success. But in later years, Clarke, afflicted by post-polio syndrome, did not always have the strength to fulfill his ideas alone. And that was how I came to work with him.

I first met Clarke in 1992, when my first novel *Raft* was nominated for the Clarke Award (for best SF novel published in Britain). Clarke was particularly taken by *The Time Ships* (1995), my sequel to Wells's *The Time Machine*. After that first contact, we worked on four books together, *The Light of Other Days* (2000) and the *Time Odyssey* series (2002-2008). It was a joy and a privilege for me to work with a man who had such a profound influence on my life, and on the age we live in.

Working with Clarke, I always thought that while he was fascinated by the new, there were traces of old obsessions in his work. In our collaboration *Sunstorm* (2005), a disorderly sun threatens Earth. The misbehavior of the sun has featured in many of Clarke's works, beginning with "Rescue Party" (1946), and including his novel *Songs of Distant Earth* (1986). I wondered if this theme was a faint echo of that West Country farm boy, dependent on the sun.

And he never forgot those pre-war American magazines. He wrote a whole memoir about them (*As-tounding Days*, 1989). 2001's sequel 2010 was published in 1982, and it reflected the reality of spaceflight as it had been experienced: uncomfortable, ugly, and cramped. But by 3001, old dreams revive. We have the "Inertial Drive," and back-from-the-dead 2001 astronaut Frank Poole says (Chapter 14): "Do you know what *Goliath* reminds me of? . . . When I was a boy, I came across a whole pile of old science-fiction magazines that my Uncle George had abandoned – 'pulp,' they were called . . . They had wonderful garish covers, showing strange planets and monsters—and of course, spaceships! As I grew older, I realized how ridiculous those spaceships were . . . Well, those old artists had the last laugh . . . *Goliath* looks more like their dreams than the flying fuel-tanks we used to launch from the Cape."

To the end, Clarke remained fascinated by the future and newness, as delivered to his study by the internet. His advice was sought by presidents and business leaders, but to his friends he was a terrific email correspondent, with his liveliness, curiosity, and huge generosity of spirit. I'll miss him very much. ○

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SOME THOUGHTS ON THE SHORT STORY

The essay that follows will be published a couple of years from now as the introduction to the seventh volume of my Collected Short Stories series, which Subterranean Press has been bringing out one book at a time since 2006. (Volume Three, covering the stories I wrote between 1969 and 1972, is just about to be published as I write this.) All of the Silverberg stories that are mentioned here first appeared in this magazine between 1988 and 1990, except for "To the Promised Land," which was published in *Omni* in 1989.

A couple of working definitions:

1) A short story is a piece of prose fiction in which just one significant thing happens.

2) A science fiction short story is a piece of prose fiction in which just one *extraordinary* thing happens.

These are not definitions of my devising, nor are they especially recent. The first was formulated by Edgar Allan Poe more than a century and a half ago, and the second by H.G. Wells about fifty years after that. Neither one is an absolute commandment: it's quite possible to violate one or both of these definitions and still produce a story that will fascinate its readers. But they're good working rules, and I've tried to keep them in mind throughout my writing career.

What Poe spoke of, actually, was the "single effect" that every story should create. Each word in the

story, he said, should work toward that effect. That might be interpreted to be as much a stylistic rule as a structural one: the "effect" could be construed as eldritch horror, farce, philosophical contemplation, whatever. But in fact Poe, both in theory and in practice, understood virtually in the hour of the birth of the short story that it must be constructed around one central point and only one. Like a painting, it must be capable of being taken in at a single glance, although close inspection or repeated viewings would reveal complexities and subtleties not immediately perceptible.

Thus Poe, in "The Fall of the House of Usher," say, builds his story around the strange bond linking Roderick Usher and his sister, Lady Madeline. The baroque details of the story, rich and vivid, serve entirely to tell us that *the Ushers are very odd people and something extremely peculiar has been going on in their house*, and ultimately the truth is revealed. There are no subplots, but if there had been (Roderick Usher's dispute with the local vicar, or Lady Madeline's affair with the gardener, or the narrator's anxiety over a stock-market maneuver), they would have had to be integrated with the main theme or the story's power would have been diluted.

Similarly, in Guy de Maupassant's classic "The Piece of String," one significant thing happens: Maitre Hauchecorne sees a piece of

string on the ground, picks it up, and puts it in his pocket. As a result he is suspected of having found and kept a lost wallet full of cash, and he is driven to madness and an early death by the scorn of his fellow villagers. A simple enough situation, with no side-paths, but Maupassant manages, within a few thousand words that concentrate entirely on M. Hauchecorne's unfortunate entanglement, to tell us a great many things about French village life, peasant thrift, the ferocity of bourgeois morality, and the ironies of life in general. A long disquisition about M. Hauchecorne's unhappy early marriage or the unexpected death of his neighbor's grandchild would probably have added nothing and subtracted much from the impact of the story.

H.G. Wells, who toward the end of the nineteenth century employed the medium of the short story to deal with the thematic matter of what we now call science fiction—and did it so well that his stories still can hold their own with the best SF of later generations—refined Poe's "single effect" concept with special application to the fantastic:

The thing that makes such imaginations [i.e., SF themes] interesting is their translation into commonplace terms and a rigid exclusion of other marvels from the story. Then it becomes human. "How would you feel and what might not happen to you?" is the typical question, if for instance pigs could fly and one came rocketing over a bridge at you. How would you feel and what might not happen to you if suddenly you were changed into an ass and couldn't tell anyone about it? Or if you suddenly became invisible? But no one would think twice about the answer

if hedges and houses also began to fly, or if people changed into lions, tigers, cats, and dogs left and right, or if anyone could vanish anyhow. Nothing remains interesting where anything may happen.

Right on the mark. *Nothing remains interesting where anything may happen.* The science fiction story is at its best when it deals with the consequences, however ramifying and multifarious, of a single fantastic assumption. What will happen the first time our spaceships meet those of another intelligent species? Suppose there were so many suns in the sky that the stars were visible only one night every two thousand years: what would that night be like? What if a twentieth-century doctor suddenly found himself in possession of a medical kit of the far future? What about toys from the far future falling into the hands of a couple of twentieth-century kids? One single wild assumption; one significant thing has happened, and it's a very strange one. And from each hypothesis has come great science fiction: each of these four is a one-sentence summary of a story included in the definitive 1970 anthology of classics of our field, *The Science Fiction Hall of Fame*.

I think it's an effective way to construct a story, though not necessarily the only effective way, and in general I've kept the one-thing-happens precept in mind through more than fifty years of writing them. The stories collected [in the not-yet-published seventh volume of my Collected Short Stories series] were written between August of 1987 and May of 1990 and demonstrate that I still believe in

the classical unities. Of course, what seems to us a unity now might not have appeared that way when H.G. Wells was writing his wonderful stories in the nineteenth century. Wells might have argued that my "To the Promised Land" is built around *two* speculative fantastic assumptions, one that the Biblical Exodus from Egypt never happened, the other that it is possible to send rocketships to other worlds. But in fact we've sent plenty of rocketships to other worlds by now, so only my story's alternative-world speculation remains fantasy today. Technically speaking, the space-travel element of the plot has become part of the given; it's the other big assumption that forms the central matter of the story.

Three of the stories in the book, "In Another Country," "We Are for the Dark," and "Lion Time in Timbuctoo," are actually not short stories at all, but novellas—a considerably different form, running three to five times as long as the traditional short story. The novella form is one of which I'm particularly fond, and one that I think lends itself particularly well to science fiction use. But it too is bound by the single-effect/single-assumption Poe/Wells prescriptions. A novel may sprawl; it may jump freely from character to character, from subplot to subplot, even from theme to countertheme. A short story, as I've already shown, is best held under rigid technical discipline. But the novella is an intermediate form, partaking of some of the discursiveness of the novel yet benefiting from the discipline of the short story. A single startling assumption; the rigorous exploration of the consequences of that assumption; a resolution, eventually, of the prob-

lems that those consequences have engendered: the schema works as well for a novella as it does for a short story. The difference lies in texture, in detail, in breadth. In a novella the writer is free to construct a richly imagined background and to develop extensive insight into character as it manifests itself within a complex plot. In a short story those things, however virtuous, may blur and even ruin the effect the story strives to attain.

One story in the collection is neither fish nor fowl, and I point that out for whatever light it may cast on these problems of definition. "Enter a Soldier. Later: Enter Another" may be considered either a very short novella or a very long short story, but in my mind it verges on being a novella without quite attaining a novella's full complexity, while at the same time being too intricate to be considered a short story. Its primary structure is that of a short science fiction story: one speculation is put forth. ("What if computers were capable of creating artificial-intelligence replications of famous figures of history?") But because Pizarro and Socrates are such powerful characters, they launch into an extensive dialog that carries the story far beyond the conventional limits of short fiction—without, however, leading it into the complexities of plot that a novella might develop.

And yet I think the story, whatever it may be, is a success—an opinion backed by the readers who voted it a Hugo for best novelette the year after it was published. The credit, I think, should go to Socrates and Pizarro, who carry it all along. As a rule, I think it's ordinarily better to stick to the rules as I under-

stand them. But, as this story shows, there are occasions when they can safely be abandoned.

Writing novels is an exhausting proposition: months and months of living with the same group of characters, the same background situation, the same narrative voice, trying to keep everything consistent day after day until the distant finish line is reached. When writing a novel, I always yearned for the brevity and simplicity of short-story writing. But then I would find myself writing a short story, and I felt myself in the iron clamp of the disciplines that govern that remorseless form, and longed for the range and expansiveness of novel-writing. I have spent many decades now moving from one extreme of

feeling to the other, and the only conclusion I can draw from it is that writing is tough work.

So is reading, sometimes. But we go on doing it. In this collection of mine are ten stories long and short that illustrate some of my notions of what science fiction ought to have been attempting in the later years of the twentieth century. Whether they'll last as long as those of Poe and Wells is a question I'd just as soon not spend much time contemplating; but I can say quite certainly that they would not have been constructed as they were but for the work of those two early masters. Even in a field as supposedly revolutionary as science fiction, the hand of tradition still governs what we do. ○

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STORMING THE ACADEMY

sin

Time for a confession: my career as a short story writer began in sin. As a sophomore in high school, I delighted in my Honors English class. At the end of the year the teacher, Mr. G, announced that our final project was not to be yet another paper, but rather an original short story. I was so excited I could hardly keep my seat as he explained that my first story must be typed and double spaced and not more than ten pages and that I could write about whatever I wanted.

With one exception.

"No science fiction," said the teacher whom I regarded at the time as a demigod.

Regular consumers of this column have read all too many nostalgic reminiscences of the science fiction I loved as a boy. I was a voracious consumer of all writing, but SF spoke to my soul. And yet, I accepted Mr. G's prohibition without question. Of course, science fiction was trash. Certainly not literature, barely even writing.

This was in 1967, the year **Dangerous Visions** <en.wikipedia.org/wiki/Dangerous_Visions> was published.

If I could go back in time, I would give my timid sophomore self a hard shake and say, "Write a god damn science fiction story, Jim. Take a D, or even an F. You'll be a better person for it!" But alas, I have to live

with my original sin. What I did write was a flaccid story about a kid trying marijuana for the first time—which caused him to commit suicide! I got a well-deserved C and was demoted from Honors English in my junior year.

beyond prejudice

The prejudice in academic circles against genre has been deep-seated and pervasive throughout much of my career. In college, I was pretty much forced to abjure the stuff I had been reading for pleasure as being too fantastic. Never mind those annoying Shakespeare plays in which witches and ghosts helped shape Western Literature's classic tragedies. Somehow **Borges** <kirjaso.sci.fi/jl/borges.htm> and **García Márquez** <kirjaso.sci.fi/marquez.htm> and **Calvino** <italo-calvino.com> got passes into the canon; maybe it was because they were from elsewhere. And by the way, where exactly were they waiting for Godot? I can't explain this prejudice and I don't think anyone who harbors it can justify it. No doubt the post-war guardians of the Fortress of Lit perceived science fiction as being perpetrated by an unwashed army of hacks writing to formula, but that hasn't been the case for seventy years and probably wasn't even true back in Hugo Gernsback's day.

Happily, holding a know-nothing opinion of the fantastic genres has been revealed to be intellectually bankrupt. Those who cling to such a view are in retreat, although they are still among us, more is the pity. Writers have been leaping the genre divide for decades. Consider the glittering literary reputations of **Margaret Atwood** <owtoad.com>, **Michael Chabon** <michaelchabon.com>, **Philip K. Dick** <philipk.dick.com>, **Ursula K. Le Guin** <ursulaklequin.com>, **Doris Lessing** <doris.lessing.org>, **Jonathan Lethem** <jonathan.lethem.com>, **Kelly Link** <kelly.link.net>, **Thomas Pynchon** <hyperarts.com/Pynchon>, **J.R.R. Tolkien** <tolkiensociety.org>, and **Kurt Vonnegut** <vonnegut.com>, to rattle off just ten pretty much at random. Lit chauvinists used to claim that these writers aren't tainted by their genre content because they're *good*, but that's clearly a specious argument, not to be taken seriously.

One sign of the respectability of genre is that science fiction and fantasy studies have taken the Academy by storm in the past twenty years. The first for-credit science fiction courses were introduced in the sixties, and soon scholars around the world got busy exploring space and faery. In 1970 they formed professional organizations on both sides of the Pond: **The Science Fiction Research Association** <sfra.org> in America and **The Science Fiction Foundation** <sf-foundation.org> in the U.K. In 1982, **The International Association for the Fantastic in the Arts** <iafa.org> came into being, in part to sponsor the yearly International Conference on the Fantastic in the Arts. It drew upon the membership of both the SFRA and the SFF as well as students, librarians, futurologists, readers, authors,

booksellers, editors, publishers, archivists, and scholars of the fantastic from around the world. Although many of the members of these organizations are academics, you do not have to be one to join and participate. These organizations promote a Big Tent view of the fantastic as it appears in literature, film, and other arts. The SFRA holds an annual conference and publishes a lively journal, the *SFRAReview*, which offers essays, reviews, and interviews. Issues dating back to 2001 are available online. Members also receive **Extrapolation** <fp.dl.kent.edu/extrap>, which is available only in print. Founded in 1959 by Thomas D. Clareson, it was the first journal to publish academic work on science fiction and fantasy. The SFF's flagship publication, *Foundation: The International Review of Science Fiction*, is also only available in print; however, its claim to be "the essential critical review of science fiction" is certainly defensible. Another print journal, *The Journal of the Fantastic in the Arts*, affiliated with the IAFA, is well worth a subscription.

After they gather together at the ICFA conference in the spring or the SFRA conference in the summer, academics head back to their institutions to give the fantastic arts the critical scrutiny they deserve and to celebrate the achievements of our writers, artists, and filmmakers in the classroom. One university, in particular, has made a major commitment to SF. The **Center for the Study of Science Fiction** <ku.edu/~sfcenter/index.html> is at the University of Kansas. The driving force behind the Center is **James Gunn** <ku.edu/~sfcenter/bio.htm>, who has had as complete a career in science fiction as it is possible to have. He has served as President of the

Science Fiction Writers of America <SFWA.org> and the SFRA. He's won a Hugo and last year was named a SFWA Grand Master. His Center is busy with many projects centering around the annual **Campbell Conference** <ku.edu/~sfcenter/campbell-conference.htm>. This includes an **Intensive English Institute on the Teaching of Science Fiction** <ku.edu/~sfcenter/SFinstitute.htm> and the presentation of the **John W. Campbell Memorial Award** <ku.edu/~sfcenter/campbell.htm> for the best SF novel of the year and the **Theodore Sturgeon Memorial Award** <ku.edu/~sfcenter/sturgeon.htm> for the best short SF of the year. During the week prior to the Campbell Conference, workshops for aspiring short story and novel writers are held.

don't bother

Paradoxically, even as the scholars of the fantastic have found their proper place in the Academy, writers who would like to hone their skills at writing science fiction and fantasy at a university are all too often turned away.

So what? We have writers' workshops of our own and they are among the best in the world at what they do. **Clarion** <clarion.ucsd.edu> in San Diego, California, **Clarion West** <clarionwest.org> in Seattle, Washington, and **Odyssey** <sff.net/odyssey> in Manchester, New Hampshire, are grueling six-week programs of writing and instruction and writing and critiquing and writing, writing, and more writing. They are sometimes referred to as writing boot camps; the description is apt. I know, because I went to Clarion myself and have taught at all three of

these programs. And without having seen the table of contents of this issue, I would nonetheless be prepared to bet that a significant fraction of the writers you are about to read are also grads of one or the other of them.

But for those who might also like to teach writing at the university level to supplement their lucrative income selling short stories to *'Mov's* (not!), a Master of Fine Arts in Creative Writing is a must. And here we find the Mr. G's of the world are still pretty much in charge.

In January 2005, **The Writer** <writermag.com> published an article by Linda Formichelli aimed at prospective MFA students. "We spoke with representatives of MFA programs across the country to get the scoop on how you can ace your writing sample, essay, and application, and then we boiled down their advice. Here's what they had to say..." There followed some wise counsel on researching programs, getting recommendations, preparing applications, and the like. And then there was this: "*Avoid genre writing samples.* Generally, we'd advise applicants to avoid genres (i.e., science fiction, romance, epic poems, etc.) and to choose work that represents their best efforts."

Gulp. At least this advice is relatively polite, if chilling in its implications that SF could never possibly be anyone's best work. But the gloves came off in a post which appeared last September on **The MFA Blog** <creative-writing-mfa-handbook.blogspot.com>: "Sadly, magical realism, science fiction, horror, and fantasy are genres that have been taken over by hacks and pulp writers to such an extent that colleges and universities are generally suspicious of a writer who professes to write such

material; in fact they may expect the work to be bad before they even look at it." Admittedly this calumny was typed by a callow undergrad at Bryn Mawr, but I'm afraid it accurately represents the opinion of the literary bigots who are yet among us.

However, I have been able to ferret out a handful of MFA programs that do welcome writers in the fantastic genres. This list may not be exhaustive, but the criteria I used in assembling it was that someone on the faculty had to be published in our field. Here is what I found: **Goddard College** <goddard.edu/masterfinearts_writing>, **North Carolina State University** <english.chass.ncsu.edu/creativewriting>, **Pacific University** <pacificu.edu/as/mfa/index.cfm>, **Seton Hill University** <setonhill.edu/o/index.cfm?PID=13>, **University of Southern Maine Stonecoast MFA** <usm.maine.edu/stonecoastmfa>, and **Western Connecticut State University** <wcsu.edu/writing/mfa>.

A quick note about Seton Hill: it offers an MA in Writing Popular Fiction, not an MFA, although I'm not quite sure what the functional difference is between these two degrees.

exit

Do we have time for one more confession? I'm not a disinterested observer of MFA programs, since I am on the Popular Fiction faculty of the Stonecoast MFA. If you had told me ten years ago that I'd be teaching graduate students to write SF and fantasy someday, I would have wondered what alternate reality you had wandered in from. The fact is that I don't have an MFA and, before I saw for myself how these programs helped new writers find their voices, I was not an advocate of this degree. So I had to overcome a prejudice of my own.

It must be acknowledged that most genre writers don't have MFAs. Many of your favorite authors didn't go to Clarion, or Odyssey either. They hauled themselves into print by their own bootstraps—the good old-fashioned way.

But if you believe, as I do, that science fiction is important, that it is a literature uniquely suited to define the culture of the twenty-first century, then we need to secure our place in the Academy.

And the thing is, I don't want Mr. G to have the last word. ○

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THE GREAT AWAKENING

"The Great Awakening" presents the science ideas underlying Rudy Rucker's nanotech series: *Postsingular* (Tor 2007) and *Hylozoic* (forthcoming in 2009). This essay will also appear in the speculative anthology *Year Million*, edited by Damien Broderick and due out from Atlas Books next month. Readers can learn more about the author and his projects at www.rudyruicker.com

In this seven-part essay I'll present some fresh speculations on ways in which our race might develop in the future. As is my usual practice, I've been researching these scientific speculations by means of fictional thought experiments—which means, in plain English, that I'm writing some novels using these ideas. The first two of these novels are called *Postsingular* and *Hylozoic*.

This essay also appears in *Year Million*, an anthology edited by Damien Broderick, out from Atlas & Co. Books this month.

1. Ubiquitous Nanomachines

Let's start with the notion of nanotechnology, which is the craft of manufacturing things at the molecular scale. One particular goal is programmable nanobots, that is, tailor-made agents who are roughly the size of biological viruses.

The comparison is apt. What's likely to play out is that, over the

coming centuries and millennia, we'll be capitalizing on the fact that biology is already doing molecular fabrication. The nascent field of synthetic biology is going to be the true nanotech of the future.

One immediate worry is what nanotechnologists have called the "gray goo problem." That is, what's to stop a particularly virulent artificial organism from eating everything on Earth? My guess is that this could never happen. The thing is, every existing plant, animal, fungus, and protozoan *already* aspires to world domination. There's nothing more ruthless than viruses and bacteria—the grizzled homies who've been keeping it real for some three billion years.

The fact that artificial organisms are likely to have simplified metabolisms doesn't necessarily mean that they're going to be faster and better. It's more likely that they'll be dumber and less adaptable. My sense is that, in the long run, Mother Nature always wins. Cautionary note: Mother Nature's "win" may not include the species survival of the pesky human race!

But let's suppose that all goes well and we learn to create docile biological nanobots. There's one particular breed that I like thinking about; I call them *orphids*.

The way I imagine it, orphids self-reproduce using ambient dust for raw materials. They'll cover Earth's surface, yes, but they'll be well-behaved enough to stop at a density of one or two orphids per square millimeter, so that you'll see a few million of them on your skin and perhaps ten sextillion orphids on Earth's

whole surface. From then on, the orphids only reproduce enough to maintain that same density. You might say they have a conscience, a desire to protect the environment. And, as a side benefit, they'll hunt down and eradicate any evil nanomachines that anyone else tries to unleash.

Orphids use quantum computing; they propel themselves with electrostatic fields; they understand natural language. One can converse with them quite well. I'll suppose that an individual orphid is roughly as smart as a talking dog with, let us say, a quadrillion bytes of memory being processed at a quadrillion operations per second.

How do we squeeze so much computation out of a nanomachine? Well, a nanogram does hold about a trillion particles, which gets us close to a quadrillion. And, according to the quantum physicist Seth Lloyd [*Programming the Universe: A Quantum Computer Scientist Takes On the Cosmos* (Knopf, 2006)], if we regard brute matter as a quantum computation, we do have some ten quadrillion bytes per nanogram. So there's only, *ahem*, a few implementation details in designing molecular nanomachines that are smart enough to converse with.

The orphids might be linked via electromagnetic wireless signals that are passed from one to the next; alternately, they might use, let us say, some kind of subdimensional faster-than-light quantum entanglement. In either case, we call the resulting network the *orphidnet*.

2. Omnividence and Telepathy

We can suppose that the orphids will settle onto our scalps like smart lice. They'll send magnetic vortices into our occipital lobes, creating a wireless human interface to the or-

phidnet. Of course we humans can turn our connection on and off, and we'll have read-write control. As the orphidnet emerges, we'll get intelligence amplification.

So now everyone is plugged into the orphidnet all the time. Thanks to the orphid lice, everyone has a heads-up display projected over their visual field.

Thanks to global positioning systems, the orphids act as tiny survey markers—or as the vertices of computer-graphical meshes. Using these realtime meshes, you actually “see” the shapes of distant objects. The orphids will be sensitive to vibrations, so you can “hear” as well. We'll have complete *omnividence*, as surely as if the earth were blanketed with video cameras.

One immediate win is that we can quickly find missing objects. Another win is that violent crime becomes impossible to get away with. The orphidnet remembers the past, so anything can be replayed. If you do something bad, people can find you and punish you.

Of course someone *can* still behave like a criminal if they have incontrovertible physical force. Like if, for instance, they're part of an armed government. I dream that the orphidnet-empowered public will see no further need for centralized and weaponized governments, and mankind's long domination by ruling elites will come to an end.

The flip-side of omnividence is that nobody has any privacy at all. We'll have less shame about sex; the subject will be less shrouded in mystery. But sexual peeping will be an issue, and as omnividence shades into telepathy, some will want to merge with lovers' minds. But surely lovers can find some way to shield themselves from prying. If they can't actually turn off their orphids, the lovers may have physical shields of

an electromagnetic or quantum-mechanical nature; alternately, people may develop mantra-like mental routines to divert unwanted visitors.

As I was just hinting, telepathy lies only a step beyond omnividence. How will it feel? One key difference between omnividence and telepathy is that telepathy is participatory, not voyeuristic. That is, you're not just watching someone else, you're picking up their shades of feeling.

One of the key novelties when we have telepathy will be the availability of psychic hyperlinks. Let me explain. Language is an all-purpose construction kit that a speaker uses to model mental states. In interpreting these language constructs, a listener builds a mental state similar to the speaker's. Visual art is another style of construction kit; here an idea is rendered by colors, shapes, and collaged-in images.

As we refine our techniques of telepathy, we'll come to a point where people can converse by exchanging hyperlinks into each others' minds. It's like sending someone an Internet link to a picture on your website—instead of sending a pixel-by-pixel copy of the image. With telepathy, I can let you directly experience my thoughts—instead of verbally explaining them. Nevertheless, language will persist. Language is so deeply congenial to us that we'd no sooner abandon it than we'd give up sex.

On a practical level, once we have telepathy, what do we do about the sleazeball spammers who'll want to flood our minds with ads, scams, and political propaganda? We'll use adaptive, evolving filters. Effective spam filters behave like biological immune systems, accumulating an ever-growing supply of "antibody" routines. In a living organism's immune system the individual cells

share the antibody techniques that they discover. In a social spam filter the individual users share their fixes and alerts.

Another issue with telepathy has to do with, once again, privacy. Very approximately, a blogger of today is a bit like someone who's broadcasting telepathically, dumping his or her thoughts into the world for all to see. A wise blogger censors his or her blog, so as not to appear like a hot-head, a depressive, or a bigot.

What if telepathy can't be filtered, and everyone can see everyone's secret seething? Perhaps, after a period of adjustment, people would get thicker skins. Certainly it's true that in some subcultures, people yell at each other without necessarily getting excited. Perhaps a new kind of tolerance and empathy might emerge, whereby no one person's internal turmoil seems like a big deal. For consider: to be publicly judgmental of someone else, you compare your well tended *outside* to the other person's messy *inside*. But once everyone's insides are universally visible, no one can get away with being sanctimonious.

Telepathy will provide a huge increase in people's ability to think. You'll be sharing your memory data with everyone. In the fashion of a web-search engine, information requests will be distributed among the pool of telepaths without the need for conscious intervention. The entire knowledge of the species will be on tap for each individual. Searching the collective mind won't be as fast as finding something in your own brain, but you'll have access to far more information.

Even with omnividence and telepathy, I expect that, day in and day out, people won't actually change that much—no matter how many millennia go by. That's a lesson that history

teaches us. Yes, we've utterly changed our tech since the end of the Middle Ages, but the paintings of Hieronymus Bosch or Peter Bruegel show that people back then were much like us, perennially entangled with the seven deadly sins.

No matter what the tech, what people do is based upon simple needs: the desire to mate and reproduce, the need for food and shelter, and the longing for power and luxuries. Regarding luxuries, skewed inverse power-law distributions of valued qualities is an intrinsic property of the natural world. Even if we become glowing clouds of ectoplasm, there's going to be something that we're competing for—and most of us will feel like we're getting screwed.

Regarding possessions, in the near term an interesting effect will emerge. Since we're all linked on the net, we can easily borrow things or even get things for free. As well as selling things, people can lend them or give them away. Why? To accumulate social capital and good reputations.

In the orphidnet future, people can always find leftover food. Some might set out their leftovers, like pies for bums. Couch-surfing as a serial guest becomes eminently practical, with the ubiquitous virtual cloud of observers giving a host some sense of security vis-à-vis the guests. And you can find most of the possessions you need within walking distance—perhaps in a neighbor's basement. A community becomes a shared storehouse.

On the entertainment front, I imagine there being orphidnet reality soap operas. These would be like real-time video blogs, with sponsors' clickable ads floating around near the characters, who happen to be interesting people doing interesting things.

People will still dine out—indeed this will be a preferred form of en-

tertainment, as physically eating something is one of the few things that requires leaving the home. As you wait at your restaurant table for your food, you might enjoy watching the actions of the chef. Maybe the restaurant employs a gourmet eater, with such a sensitive and educated palate that it's a pleasure to mind-meld when this eater chows down.

Will telepaths get drunk and stoned? Sure! And with dire consequences. Imagine the havoc you could wreak by getting wasted and "running your brain" instead of just emailing, phoning, or yelling at people face to face. There will be new forms of intoxication as well. A pair of people might lock themselves into an intense telepathic feedback loop, mirroring their minds back and forth until chaotic amplification takes hold.

In the world of art, suppose someone finds a way to record mood snapshots. And then we can produce objects that directly project the raw experiences of transcendence, sense of wonder, euphoria, mindless pleasure, or sensual beauty—without actually having any content.

Telepaths will use language for superficial small talk, but, as I mentioned before, just as often they'll also use psychic hyperlinks and directly exchanged images and emotions. Novels may take the form of elaborate sets of mental links. Writing might become more like video-blogging. A beautiful state of mind could be saved into a memory network, glyph by glyph. This new literary form might be called the metanovel.

3. Artificial Intelligence and Intelligence Amplification

In the ubiquitous nanobot model I've been discussing—the orphid-

net—we have a vast array of small linked minds. It's reasonable to suppose that, as well as helping humans do things, the orphidnet will support emergent AIs, that is, artificially intelligent agents that enlist the memory and processing power of a few thousand or more of the individual orphids.

Some of these agents will be as intelligent as humans, and some will be even smarter. It's easy to imagine them being willing to help people by carrying out things like complex and tedious searches for information or by simulating and evaluating multiple alternate action scenarios. The result is that humans would experience IA, or intelligence amplification.

Looking higher, we can suppose that the intelligent orphidnet agents group into higher minds that group into still higher minds and so on, with one or several planetary-level minds at the top.

Here, by the way, is a fresh opportunity for human excess. Telepathically communing with the top mind will offer something like a mystical experience or a drug trip. The top mind will be like a birthday *piñata* stuffed with beautiful insights woven into ideas that link into unifying concepts that puzzle-piece themselves into powerful systems that are in turn aspects of a cosmic metatheory—*aha!* Hooking into the top mind will make any individual feel like more than a genius. Downside: once you unlink you probably won't remember many of the cosmic thoughts that you had—and you're going to be too drained to do much more than lie around for a few days.

Leaving ecstatic merging aside, let's say a little more about intelligence amplification. Suppose that people reach an effective IQ of a thousand—by taking advantage of

the orphidnet memory enhancement and the processing aid provided by the orphidnet agents. Let's speak of these kilo-IQ people as *kiquies*.

As *kiquies*, they can browse through all the world's libraries and minds—with orphidnet agents helping to make sense of it all. How would it feel to be a *kiquie*?

I recently had an email exchange about this with my friend Stephen Wolfram, a prominent scientist who happens to be one of the smartest people I know. When I asked him how it might feel to have an IQ of a thousand, and what that might even mean, he suggested that the difference might be like the difference between simulating something by hand and simulating it on a high-speed computer with excellent software. Quoting from Wolfram's email:

"There's a lot more that one can explore, quickly, so one investigates more, sees more connections, and can look more moves ahead. More things would seem to make sense. One gets to compute more before one loses attention on a particular issue, etc. (Somehow that's what seems to distinguish less intelligent people from more intelligent people right now.)"

4. Against Computronium

In some visions of the far future, amok nanomachines egged on by corporate geeks are disassembling Sol system's planets to build so-called Dyson shells of "computronium" around the Sun. Computronium is, in SF writer Charles Stross's words, "matter optimized at the atomic level to support computing." A Dyson shell is a hollow sphere of matter that intercepts all of the central sun's radiation—using some of it and then passing the rest outward

in a cooled-down form, possibly to be further intercepted by outer layers of Dyson shells. What a horrible thing to do to a solar system!

I think computronium is a spurious concept. Matter, just as it is, carries out outlandishly complex chaotic quantum computations by dint of sitting around. Matter isn't dumb. Every particle everywhere everywhere is computing at the max possible flop. I think we tend to very seriously undervalue quotidian reality.

Turning an inhabited planet into a computronium Dyson shell is comparable to filling in wetlands to make a mall, clear-cutting a rainforest to make a destination golf resort, or killing a whale to whittle its teeth into religious icons of a whale god.

Ultrageek advocates of the computronium Dyson shell scenario like to claim that nothing need be lost when Earth is pulped into computer chips. Supposedly the resulting computronium can run a VR (virtual reality) simulation that's a perfect match for the old Earth—call the new one Vearth.

It's worth taking a moment to explain the problems with trying to replace real reality with virtual reality. We know that our present-day videogames and digital movies don't fully match the richness of the real world. What's not so well known is that no feasible VR can *ever* match nature.

This is because there are no shortcuts for nature's computations. Due to a property of the natural world that I call the "principle of natural unpredictability," fully simulating a bunch of particles for a certain period of time requires a system using about the same number of particles for about the same length of time. Naturally occurring systems don't allow for drastic shortcuts. [For de-

tails on this point, see Rudy Rucker, *The Lifebox, the Seashell and the Soul* (Thunder's Mouth Press, 2005), or see the topic "irreducibility" in Stephen Wolfram, *A New Kind of Science*, (Wolfram Media, 2002).]

Natural unpredictability means that, if you build a computer sim world that's smaller than the physical world, the sim cuts corners and makes compromises such as using bitmapped wood-grain, linearized fluid dynamics, or cartoon-style repeating backgrounds. Smallish sim worlds are doomed to be dippy Las Vegas/Disneyland environments populated by sim people as dull and predictable as characters in bad novels.

But wait, if you *do* smash the whole planet into computronium, you have potentially as much memory and processing power as the intact planet possessed. It's the same amount of mass, after all. So then we *could* make a fully realistic world-simulating Vearth with no compromises, right? Wrong.

Perhaps you can get the hardware in place, but there's the vexing issue of software. Something important goes missing when you smash Earth into dust: you lose the information and the embodied software that was embedded in the world's behaviors. An Earth-amount of matter with no high-level programs running on it is like a potentially human-equivalent robot with no AI software, or, more simply, like a powerful new computer with no programs on the hard drive.

Ah, but what if the nanomachines copy all the patterns and behaviors that are embedded in Earth's biosphere and geology? What if they copy the forms and processes in every blade of grass, in every bacterium, in every pebble—like Citizen Kane bringing home a European castle that's been dismantled into

portable blocks, or like a foreign tourist taking digital photos of his disassembled California cheeseburger's component parts?

But, come on, if you want to smoothly transmogrify a blade of grass into some nanomachines simulating a blade of grass, then why bother grinding up the blade of grass at all? After all, any object at all can be viewed as a quantum computation! The blade of grass already is an assemblage of nanomachines emulating a blade of grass.

Just as she is, Nature embodies superhuman intelligence. As I said before, matter isn't dumb.

Why am I harping on this? It's my way of leading up to one of the really wonderful events that I think our future holds: the withering away of digital machines, and the coming of truly ubiquitous computation. This is what I call the Great Awakening.

I predict that eventually we'll be able to telepathically tune in on nature's computations. We'll be able to commune with the souls of stones.

The Great Awakening will eliminate the nanomachines and digital computers in favor of naturally computing objects. We can suppose that our newly intelligent world will in fact take it upon itself to crunch up the digital machines, frugally preserving or porting all of the digital data.

Instead of turning nature into chips, we'll turn chips into nature.

5. The Advent of Panpsychism

In the future, we'll see all objects as alive and conscious. This is, by the way, a familiar notion in the history of philosophy, and by no means disreputable. Hylozoism (from the Greek *hyle*, matter, and *zoe*, life) is the doctrine that all matter is intrin-

sically alive. And panpsychism is the related notion that every object has a mind. [See David Skrbina, *Panpsychism in the West* (MIT Press 2005).]

Already my car talks to me—so do my phone, my computer, and my refrigerator—so I guess we could live with talking rocks, chairs, logs, sandwiches, and atoms. But unlike today's chirping appliances, I see the living objects as truly having soul.

My opinion is that consciousness is not so very hard to achieve. How does everything wake up? I think the key insight is this:

Consciousness = universal computation + memory + self-reflection.

Computer scientists say a system is a universal computer if it's capable of emulating the behavior of every other computing system. The complexity threshold for universal computation is very low. Any desktop computer is a universal computer. A cell phone is a universal computer. A Tinkertoy set or a billiard table can be a universal computer.

In fact, just about any natural phenomenon at all can be regarded as a universal computer: swaying trees, a candle flame, drying mud, flowing water—or even a rock. To the human eye, a rock appears not to be doing much. But viewed as a quantum computation, the rock is as lively and seething as, say, a small sun. At the atomic level, a rock is like a zillion balls connected by force springs. This kind of compound oscillatory system behaves chaotically; and computer science teaches us that any chaotic system can indeed support universal computation.

The self-reflection aspect of a system has to do with having a feedback process whereby the system has at least two levels of self-awareness: (i) an image of itself reacting to its environment, and (ii) an image of itself

watching its own reactions. [See Antonio Damasio, *The Feeling of What Happens* (Harcourt, New York 1999) and Jeff Hawkins and Sandra Blakeslee, *On Intelligence* (Times Books, 2004).]

We can just about see how to program self-reflection into digital computers, so I don't think it will be long until we can make them be conscious. But digital computers are *not* where the future is at. We don't use clockwork gears in our watches anymore, and we don't make radios out of vacuum tubes. The age of digital computer chips is going to be over and done, if not in a hundred years, then certainly in a thousand. And then we'll be well past the Great Awakening, and working with the consciousness of ordinary objects.

I've already said a bit about why natural systems are universal computers. And the self-reflection issue is really just a matter of programming legerdemain. But two other things will be needed.

First, in order to get consciousness in a brook or a swaying tree or a flame or a stone, we'll need a universal memory upgrade that can be in some sense plugged into natural objects. *Second*, in order for us to be able to work with the intelligent objects, we're going to need a strong form of non-digital telepathy for communicating with them.

In the next section, "Exploiting the Subdimensions," I'll explain how, in order to bring about the Great Awakening, firstly we'll manipulate the topology of space in order to give endless memory to every object, and secondly we'll create a hi-fidelity telepathic connection among all the objects in the world. But for now let's take this for granted. Assume that everything has become conscious and that we are in telepathic communica-

tion with everything in the world.

To discuss the world after this Great Awakening, I need a generic word for an uplifted awakened natural mind. I'll call these minds *silps*. We'll be generous in our panpsychism, with every size of object supporting a conscious silp, from atoms up to galaxies. Silps can also be found in groupings of objects—here I'm thinking of what animists regard as *genii loci*, or spirits of place.

There is a seeming problem with panpsychism: how it is that we have synchronization among the collective wills involved in, say, rush hour traffic? Consider the atoms, the machine parts, the automotive sub-assemblies, the cars themselves, the minds of the traffic streams, not to mention the minds of the human drivers, and the minds of the humans' body cells. Why do the bodies do what the brains want them to? Why is it that all the little minds agree? Why doesn't the panpsychic world disintegrate into squabbling disorder? Solution: everyone's idea of their motives and decisions are *Just So* stories confabulated *ex post facto* to create a narrative for what is in fact a complex, deterministic computation, a law-like cosmic harmony where each player imagines he or she is improvising.

Panpsychism is a new way of looking at the world, and I'm still getting familiar with it. What would a tree or campfire or waterfall be into? Perhaps they just want to hang out, doing nothing. Perhaps it's only we who want to rush around, fidgety monkeys that we are.

But if I overdo the notion of silp mellowness, I end up wondering if it even matters for an object to be conscious. Assuming the silps have telepathy, they do have sensors. But can they change the world? Well, if I

think of silps as quantum computations, they *do* have effectors in that they can influence their own matter, by affecting rates of catalysis, heat flows, quantum collapses, and so on.

Therefore, for instance, a drinking glass might be harder to break than before. The glass might shed off the vibration phonons in optimal ways so as to avoid catastrophic fracture—assuming that the glass *minds* being broken. And I think of a bean that slyly rolls away to avoid being cooked—sometimes objects do seem to hide.

Does a log mind being burned? It would be a drag if you had to feel guilty about stoking your fire. But silps aren't so bent on self-preservation. We humans (and animals) have to be like that, so we can live long enough to mate and to raise our young. Otherwise we go extinct. But a log's or rock's individual survival doesn't effect the survival of the race of logs or rocks. Silps aren't hard-wired to fear death.

Let's say a bit more about self-reflection among silps. As a human, I have a mental model of myself watching myself having feelings about events—this is the self-reflection component of consciousness mentioned above. There seems to be no reason why this mode of thought wouldn't be accessible to objects. Indeed, it may be that there's some "fixed point" aspect of fundamental physics that makes self-reflection an inevitability. Perhaps, compared to a quantum-computing silp, a human's methods for producing self-awareness are weirdly complex and roundabout.

As I mentioned before, when the Great Awakening comes, the various artificially intelligent agents of the orphidnet will be ported into silps or into minds made up of silps. As in the orphidnet, we'll have an upward-mounting hierarchy of silp minds. In-

dividual atoms will have small silp minds, and an extended large object will have a fairly hefty silp mind. And at the top we'll have a newly conscious planetary mind: Gaia.

Because the silps will have inherited all the data of the orphids, the humans will still have their omnividence, their shared memory access, and their intelligence amplification. But, as I mentioned before, when the Great Awakening comes, we'll have an even stronger form of telepathy, which is based upon a use of the subdimensions.

6. Exploiting the Subdimensions

I need to explain how I'm going to provide every atom in the universe with a memory upgrade—and how I'm going to provide universal telepathy.

I propose drawing on an old-school SF power chord, the notion of the "subdimensions." What are the subdimensions? The phrase is a science fictional shibboleth from the 1930s, but I think we can retrofit it to stand for the topology of space at scales below the Planck length, that is, below the size scale at which our current notions of physics break down.

One notion, taken from string theory, is that we have a lot of extra dimensions down there, and that most of them are curled around into tiny circles. For a mathematician like myself, it's annoying to see the physicists help themselves to higher dimensions—and then waste the dimensions by frugally twisting them into tiny coils. It's like seeing someone win a huge lottery, and then put every single penny of the winnings into a stodgy, badly run investment fund.

I propose that sometime—certain-

ly before the year million, and perhaps much sooner than that—we'll find a way to change the intrinsic topology of space so as to uncurl one of these stingily rolled-up dimensions. And of course we'll be careful to pick a dimension that's not absolutely essential for the string-theoretic Calabi-Yau manifolds that are supporting the existence of matter and spacetime. I see our selected dimensional coil as springing loose to instantly become an infinite line, an endless new direction that projects from every point of space.

Just for the sake of discussion, let's suppose that it's the eighth dimension that we uncurl. And now I propose that we use this handy extra dimension as our universal memory upgrade. Atoms can make tick marks on their eighth dimension, as can people, clouds or stones. In other words, you can store info as bumps anywhere you like along the infinite expanse of eighth dimensional space. The infinite accessible spike provides endless memory at every location, and thereby gives people endless perfect memories and gives objects enough memory to make themselves conscious as well.

Okay, sweet, and what about universal telepathy? Let's suppose that all of the eighth dimensional axes meet at the point at infinity, and let's suppose that our nimble extradimensional minds can readily traverse an infinite expanse, perhaps using a Zenonian acceleration so that the first meter takes a half second, the second meter a quarter second, the third meter an eighth of a second, and so on, so that after one second you've darted out to the shared point at infinity. And once you're there, you can zoom back down to any space location you like. Everyone is connected via an accessible

router point at infinity. So now, even though the silps have eaten the orphids as part of the Great Awakening, we'll all have perfect telepathy.

7. The End?

Of course we won't stop at mere telepathy! Eventually, we'll have teleportation, telekinesis, and the ability to turn our thoughts into objects.

Teleporting can be done by making yourself uncertain about which of two possible locations you're actually in. In other words, I view teleportation as a three-step process. *First* you perfectly visualize your source and target locations and mentally weave them together. *Second* you become uncertain about which location you're actually in. And *third* you abruptly observe yourself, asking, "Where am I?" Thereby you precipitate a quantum collapse of your wave function, which lands you at your target location.

I'm also supposing that whatever I'm wearing or holding will teleport along with me; let's say that I can carry anything up to weight of, say, a heavy suitcase.

Once people can teleport, they can live anywhere that they can find a vacant lot to build on. You can ferry in water and you can teleport out with your waste. What about heat and light? Perhaps you can get trees to produce electricity and use that for lamps and heaters.

As a next step, we'd learn to teleport objects without moving ourselves at all. This is what's known as telekinesis. How would telekinesis work? Suppose that, sitting in my living room, I want to teleport an apple from my fridge to my coffee table. How do I proceed? I visualize the source and target locations as when

doing personal teleportation, that is, I visualize the fridge drawer and the tabletop in the living room. But now, rather than doing an uncertainty-followed-by-collapse number on my body, I need to do it on the apple. I become the apple for a moment, I merge with it, I cohere its state function to encourage locational uncertainty, and then I collapse the apple's wave function into the apple-on-table eigenstate.

What's the status of the apple's resident silp while I do this? In a sense the silp *is* the apple's wave function, so it must be that I'm bossing around the silp.

Can animals and objects teleport as well? What a mess that would be! We'd better hope that only humans can teleport. How might we justify such a special and privileged status for our race?

I'll draw on an idea in Robert Sheckley's 1953 story "Specialist," from his landmark anthology, *Untouched By Human Hands*. Sheckley suggests that humans have the power of teleportation because, unlike animals or objects, we experience doubt and fear.

Let's start with Sheckley's premises. Certainly it seems as if animals don't have doubt and fear in the same way that we do. If a predator comes, an animal runs away, end of story. If cornered, a rat bares his teeth and fights. Animals don't worry about what might happen; they don't brood over what they did in the past; they don't mentally agonize—or at least one can *suppose* that they don't.

And it's easy to suppose that the silps that inhabit natural processes don't have doubt and fear either. Silps don't much care if they die. A vortex of air forms and disperses, no problem.

Okay, so what about Sheckley's conclusion? *Why* do doubt and fear

lead to teleportation? Having doubt and fear involves creating really good mental models of alternate realities. And being able to create good mental models of alternate realities means the ability to imagine yourself being there rather than here. And this means that we can spread out our wave functions in ways that other beings can't. In other words, humans happen to carry out certain delicate kinds of quantum computation—and these lead to teleportation and telekinesis.

As a final goodie, I'd like to discuss the possibility of creating objects out of nothing. I'm going to call such objects "tulpas."

The origin of the word is that, in Tibetan Buddhism, a tulpa is a material object that an enlightened adept can mentally create. A psychic projection that's as solid as a brick.

I think it's entirely possible that in the future any human can create tulpas. How? You'll psychically reprogram the quantum computations of the atoms around you, causing them to generate de Broglie matter waves converging on a single spot. Rather than being *light* holograms, these will be *matter wave* holograms, that is, physical objects created by computation. Your tulpas.

Thus your thoughts can become objects—by coaxing the nearby atoms to generate matter holograms that behave just like normal objects. You can build a house from nothing, turn a stone into bread, transform water into wine, and make flowers bloom from your fingertips.

And then will humans finally be satisfied?

Of course not. We'll push on past infinity and into the transfinite realms beyond the worlds—mayhap to embroil ourselves with the elder gods and the Great Old Ones. ○

LANDSCAPES

There are other dimensions; places
we cannot go, directions we cannot see.

There are places where our bodies
would be paradoxical, impossible;
where we can go only in our math, or
in our dreams—and are not these the
same thing? Mathematics a land of
pure imagination?

Places further away than infinity, and
closer than the width of an atom,
where light is a gel, like pudding, or
more solid than granite; or places
where neither light nor heat nor sound
exists, but other forces inconceivable
to us; or places where gravity is so
strong that nothing exists except black
holes, dancing their slow whirling
spiraling circling dance of gravity in a
place that has never known light.
Universes upon universes closer to us
than our skin, separated from us only
by that direction we cannot see, yet so
different from us that the birth and
explosion and cooling and death of a
universe, everything that is or can be,
happens in just a fraction of a fraction
of a nanosecond, and yet that fractional
fragment of an instant is still
happening, still now, and still now, in
a timelike dimension we know nothing
of. And even there, in that un-
imaginable universe (or, imaginable
only in our mathematics, which is to
say, our dreams), in that fragment of a
nanosecond, an unimaginable being
(or, a being imaginable only to our
mathematics, which is to say . . .) of that
eternal frozen now, writes or speaks or
vibrates in some unimaginable way of
other universes, of us

who are so improbable that we can
only be imagined in mathematics, or
in dreams.

—Geoffrey A. Landis

Matthew Johnson maintains a blog at *zatrikion.blogspot.com*. The author recently began a new job creating media education resources for Media Awareness Network, a leading education non-profit. A substantial part of his job is keeping up with current and near-future media and Internet developments, which, he says, is a fairly good way of getting ideas for stories. New ideas for exploiting the Internet are certainly used creatively in . . .

LAGOS

Matthew Johnson

Safrat liked being a vacuum cleaner. Of all the jobs she might be given, it was her favorite: she liked to see in the rich people's homes, even if her point of view was only three inches off the ground. It was light work, too, not like digging earth or handling barrels of toxic waste. That shouldn't have made a difference but it did, at the end of the day when the motor-muscles she didn't have ached beyond words.

The amber warning lit up: only half an hour left in her shift. She switched to light suction and began moving more swiftly around the floor, scanning for any spots she might have missed or where dust might have settled since she started. The foreman, Adegoke, had said that a house could never be clean enough for the rich people. If they were not satisfied then there would be no more demand for workers from Lagos, and the telepresence booths the government had built with World Bank money would sit idle. It was up to workers like her, he had said, to do a good enough job that even the rich white people would be satisfied.

She had just finished her inspection when the red warning lit, and she started to disengage from the vacuum and return to full wakefulness. You could not work the machines, even the very simple ones like vacuum cleaners, when you were entirely awake: you shuddered and jolted and made stupid mistakes, as if you were thinking about every step while you walked. Many of the workers drank palm wine or smoked India hemp before their shifts to get into the proper state of mind, but Safrat found it came naturally to her if she chose one simple task to start with and did it slowly and rhythmically. Like the others, though, she was always muzzy after a shift, and she was glad her brother Paul was able to meet her and guide her home.

It was only five months they had been in Lagos. The city was for the

ambitious, and neither of them was that: they had been happy to tend battery trees in the country, up north of Ilorin, until the state energy company had chosen their village as the site of the new transmission station. After that there was no choice for either of them but to go to the city like all the rest, try to find a relation who would help with a job and a place to live. They had found a cousin, an oga named Tinubu, who had quickly gotten Safra the telepresence job—they preferred to hire women for some reason—but could only find casual work for Paul, hustling and running for him. This meant that while Safra gave Tinubu only a quarter of her salary Paul had to give half of whatever he made, since he could not be relied on to bring in anything at all.

Now Paul led Safra back to their home, past the market crowded with stalls with sheet-metal roofs, where medicines, bicycle parts, and DVDs were sold; the sound of the hawkers and the car horns came to her like distant music, barely penetrating the haze that surrounded her. It would take them more than an hour to get back to Isale Eko on foot, but that was all right. They paid only for night rights in their room, and if they got there before nine o'clock they would have to wait around outside the building. Instead they stopped for a meal of fufu and groundnuts and then arrived just as the people who slept there during the day were leaving, found the mattresses still warm on the floor.

In the morning Safra rose, picked up the two plastic buckets that sat at the foot of her mattress and went to the borehole to buy water. As she did she passed one of the sleeping alleys, where plastic sheets were laid on the ground as beds: she and Paul had slept in one of those when they first arrived, and it was only Tinubu and the job he had found for her that had brought them indoors. Water from the borehole was trickling down the alley, creeping over the plastic sheets, but one of the people there still slept anyway.

She paid twenty naira to fill both buckets, waiting for a long time behind a woman with a foot-washing business who was filling ten, loading each one onto a push-cart; then she carefully trudged back to the apartment building, willing herself to ignore the calls of the touts and hawkers that offered her cell phones, watches, anything. The wind was blowing from the east, bringing sawdust from the great mills on the mainland, and by the time she got back she was coughing white phlegm.

"How did you sleep?" Paul asked as she joined him on the stoop. He was holding two wooden bowls full of fufu, handed one to her.

"I never remember," Safra said. "Why do you ask?"

"You were talking," he said. "In English."

Safra frowned. Both of them spoke English well enough to get by in Lagos, but their first language was Yoruba. She didn't suppose she had ever thought in English, never mind dreaming in it. "What did I say?"

Paul shrugged. He was concentrating on pouring the water she had bought into the dozen or so clear plastic bottles he had collected, which he would then strap on his back under a vest of cargo netting: a few hours in the sun would kill off whatever evils lurked within. "I didn't follow it," he said, not taking his eyes off the bottle's mouth. "Something about a vacation, I think."

She put down her bowl and laughed. "A vacation in English," she said. "That sounds good."

He laughed too, though he did not look up. "I'll bring you water at two, unless Tinubu has a job for me."

Safrat nodded. "Thank you," she said, then stood and patted him on the shoulder, careful not to disrupt his concentration. It was hot already, and by the time she got to the telepresence station she wished she had brought one of Paul's water bottles. On a day like today, though, each bottle might bring three times what it had cost.

The other women were starting to arrive, either on foot like her or by the rattling danfo. They were all early: without a watch—one that worked, and kept working, which was not something to be found in Lagos—it was the only way to be sure of being on time. That was something the rich white people who had built the booths insisted on.

"Smoke?" one of the other workers asked, an Igbo girl named Janet. She held out a rolled cigarette, double-stuffed with tobacco and India hemp.

Safrat held up her hand in polite refusal, but a moment later changed her mind and accepted it. The taste was bitter and harsh as she drew in the smoke, and she felt light-headed; she did not much like the effect that smoking had on her, but today she felt a need to join in the morning rituals of the other women.

"My husband says I was keeping him up all night," said one of them, a Lagos-born woman everyone called Victoria; she was careful to note, in every conversation, that she and her husband lived on Victoria Island. She took a swig from a plastic milk jug full of palm wine, passed it to the woman next to her.

"Were you talking?" Safrat asked.

Victoria's eyebrows shot up in surprise. Among the workers there were lines rarely crossed. There were those who came by foot and those who came by danfo, and Safrat came by foot; there were those who drank palm wine and those who smoked India hemp, and on most days Safrat did neither. "Why do you ask?" Victoria said.

Safrat coughed, the smoke from Janet's cigarette still burning her throat. "My brother said I was talking in my sleep last night," she said. "In English."

"I only speak in English," Victoria said pointedly.

"But were you talking? In your sleep?"

Before Victoria could speak Janet said, "I think I was. When I woke this morning all the people in my room were looking at me."

Victoria raised an eyebrow and looked Safrat in the eye, ignoring Janet. "Yes," she said. "He said I was talking."

"What is this, what is going on?" Adegoke asked. The foreman, a tall, thin man in his twenties, had stepped out of the station as he did every morning, brandishing his wrist with the gold watch at the women. "You are all nearly late. What is this, palm wine and hemp? Is this going to help you do careful work?"

Normally this was the cue for the women to put these things away and file into their telepresence booths, but today Victoria turned to face Adegoke directly. "Your machines are making us sick," she said. "Why should we go in?"

Adegoke put his hands on his hips. "What are you saying?" he asked. "There is nothing wrong with the machines. They are brand new."

"Ask Safrat," Victoria said, pointing to her and stepping aside. "She knows what's going on."

"Safrat?" Adegoke asked. "Are you causing trouble here?"

The air was gone from her lungs; if she lost this job Safrat would have to give Tinubu everything she had saved so far as compensation, and his take from the next job would be higher.

"Well?" Adegoke said. "Can't you speak?"

"I was, I was just noticing many of us seem to be talking in our sleep," she said, keeping her eyes on Adegoke's leather shoes.

"That is normal enough," Adegoke said. "When you don't work hard enough in the day your mind keeps going at night."

"We are all talking in English," Safrat said.

"And you think this is the booths? No, it is impossible. The wall of fire prevents anything like that."

The women all looked at him curiously.

"The wall of fire," Adegoke said. He waved his hands around his head.

"When the World Bank men built this station, they built it with a wall of fire around it. It keeps things from coming back to you, to the booths. All right?" There was silence. "All right. Now get to your stations and get to work."

Safrat went to her booth in silence, sat down and hooked herself up to the machine. As soon as the drugs had relaxed her muscles she got to work, controlling a forklift loading cartons onto and off of a ship; the usual rhythm eluded her, though, and she was glad to have had some of Janet's cigarette. The work went slowly, and by the end of the day she was too exhausted to think about anything but sleep.

Paul was not waiting for her at the end of her shift: Tinubu must have found him a job, she thought, or at least an errand. She carefully made her way home, forcing herself to concentrate on her surroundings, and finally settled down on the steps of her apartment building to wait for her brother.

She awoke to find him standing over her, two bowls of fufu in hand; gratefully she took one, began to eat it in silence.

"How did you do today?" she asked after a few minutes.

Paul smiled. "Tinubu gave me a job, in the Mile Twelve market."

"A job? For how long?"

"Just for today." He must have noticed the look that crossed her face, because he quickly added "But he said he'd get me more, soon."

"How much did you make?" Safrat asked.

"Two thousand naira."

"How much did you keep?"

Paul looked away. "Two hundred."

She shook her head. "You'd have made more selling water."

"But he said—he promised if I did a good job selling he would find me a regular job—"

"Selling what?"

"Watches today, but it doesn't matter . . . Safrat?"

"What?" She blinked, feeling as though some force was pulling her off balance. "What did you say?"

"I asked if you were all right," Paul said. He leaned close; glancing away, Safrat saw that almost all of her fufu had been eaten. Had she been asleep, or just away from home? "You were talking again, in English. When I told you about the watches Tinubu gave me to sell you started to say something about gold Rolexes."

"In English?"

"Yes."

Safrat frowned, shook her head. "Do you have any paper? For writing, I mean?"

Paul nodded.

"Next time you hear me talking like that, write down everything I say. Exactly the words I say, all right?"

Nodding again, Paul said "All right. What do you think this is?"

"I don't know," Safrat said.

The next morning Safrat went back to work, clutching the piece of paper on which Paul had written her nighttime speech. Victoria was already there when she arrived, passing the day's jug of palm wine around with her friends, and after a moment Safrat screwed up the courage to approach her.

"What is it?" Victoria asked, eyeing her suspiciously.

"What your husband said you were saying, in the night," Safrat asked, thrusting the paper at her. "Was it anything like this?"

Victoria's eyes narrowed as she took the paper, squinting at Paul's rough letters. "I don't know," she said. "I suppose."

"What is this?" Adegoke asked, snatching the paper from Victoria's hand.

Victoria threw Safrat a look of fury: to the foreman she was just another worker, and she did not like to be reminded of that. "It's Safrat's," she said. "She brought it."

"Safrat, I told you—"

"It's nothing," Safrat said. She reached out for the paper in Adegoke's hands, but stopped short of touching it. "Please. It's nothing."

"I will keep this," Adegoke said. "But you all should get to work."

The other women glared at Safrat as they passed into the station, their wine and India hemp unfinished. There would be nothing to do but sit in their booths until the shift began, but nobody, not even Victoria, was willing to argue with the foreman.

That day Safrat was given her least favorite job, clearing, cleaning, and stacking dishes at an automatic restaurant somewhere; it was nervous work, too delicate to ever establish a rhythm, and the unchanging perspective made her feel as though she was trapped in a box. The day crawled by, plate by plate and glass by glass, until finally the amber warning lit. She used the last half-hour of her shift to check the machine she was controlling for wear or glitches, then disconnected as soon as the red warning came up. Today she was wide awake. She looked around at the others emerging dazed from their booths, heard murmured English on their lips. She frowned, saw Paul waiting for her outside.

"No work today?" she asked when she joined him.

He shook his head. "Tinubu says tomorrow."

"You'll need to," Safrat said. "We have to hire a babalawo."

"Safrat—"

"This thing I have, the other women have it too. Some of them, anyway."

"Did you talk to the foreman?"

She glanced back at the station. "He wouldn't listen. Not to me."

Paul sighed. "And the other girls? Will they help pay?" Safrat shook her head. "So why should we do it? Let one of the rich ones do it." By *rich* he meant someone like Victoria: rich enough to have her own room, to live in a neighborhood with running water, to take the danfo to work.

"I think something is wrong here, very wrong," Safrat said. "I'm afraid to wait."

After a moment Paul nodded, said, "I'll ask Tinubu to find us a babalawo."

"No. Tinubu can't think I'm causing trouble at my job. Didn't our uncle Olisa have a cousin in the city who was a babalawo?"

"Yes, I think," Paul said. "I'll see if I can find him tonight. Is that all right?"

Safrat nodded. "I hope so."

Adegoke watched the women go, looked down at the torn piece of newspaper on his desk. He had been puzzling over it all day, trying to understand what the girl Safrat had written there. Her writing was very poor, but he could make out the numbers: very large numbers, it seemed, and what he thought was the word *dollars*. A treasure, he thought, she had been speaking in her sleep of a treasure: he had heard stories like this, when he had been a boy in his grandfather's village east of Uyo. Men who had died over money might live on as eggun, unable to rest until the treasure was found. He thought that was what the message was saying, that the spirit was inviting him to find the fortune, but at the end it turned into nonsense, just a string of numbers. He picked up a pen and copied what he could read of the writing onto a clean piece of paper, hoping it might make more sense.

His hand slowed as he wrote the last sequence of numbers. As he copied them he recognized the first three as the area code for Lagos. Adegoke counted out the remaining numbers, nodded.

He took a deep breath, picked up the phone and began dialing.

"Sit down," the babalawo said.

Safrat looked around the room: it was scattered with scraps of paper and stubs of candles, wooden bowls and drums and shells of kola nuts. To her surprise the babalawo did not live much better than she did; in his own room, it was true, but still in Isale Eko. She brushed a spot on the floor bare of nut shells and sat down cross-legged.

"My brother says you fear sorcery," the babalawo said. By *brother* he meant Paul: in the country there were no aunts or uncles, just mothers and fathers.

"Yes," Safrat said. "For the last few nights, I've been—"

The babalawo held up a finger. "Shh," he said, then nodded twice, slowly. He unslung the bag from his shoulder and drew out a broad, shallow wooden tray and a small plastic bag full of gray powder. He put the bowl on the floor, opened the bag and emptied the powder into the tray, smoothing it with the back of his hand until it was perfectly flat and featureless. Then he reached into the bag again and drew out eight palm nuts, each with tiny holes drilled into one side. He closed his hands together, shook the palm nuts inside and then tossed them into the tray; some fell with the blank side up, some with the drilled, and he drew lines from one to another in the powder, following some pattern or procedure she could not follow.

"Elegua and Ogunn are present," the babalawo said. "A road has been opened, or a door. Something that should not have been opened. Does this mean anything to you?"

Safrat frowned. "I don't know."

The babalawo shook his head quickly. "Iron is involved. A car, a bridge—"

"A machine?" Safrat asked.

Frowning, the babalawo ran his finger along the path he had drawn between the nuts. "Perhaps," he said. "Yes, I think so, yes. Ogunn is concerned with a machine."

"Is that what's wrong with me?" Safrat said. "Is the machine broken?"

"Broken? No." The babalawo scratched his head, squinting at the palm nuts before him. "There is sorcery in the machine. An eggun, or the work of another babalawo."

"Can you help?"

"Perhaps." The babalawo scooped up the palm nuts, put them back in his shoulder bag and then emptied the gray powder back into its bag. Finally he put the wooden tray back into his shoulder bag and stood up. "I will need to see the machine."

Safrat sighed as she got to her feet. "How much will that cost?"

The babalawo shrugged. "We will see," he said.

Adegoke looked down at the piece of paper, then up at the building in front of him. He had the right address, but he was puzzled: this was a government building, not the sort of place he'd expect to find a fortune. He had been just as surprised, of course, when the number Safrat had written down had been a real phone number. He went into the air-conditioned lobby, suddenly aware of the sweat under his striped shirt, made his way quickly to the building directory. Number thirty-four, he'd been told: he buzzed for it and waited.

"Who is it?" a voice said. It sounded like the same one as on the phone.

"We spoke this evening," Adegoke said. He cleared his throat. "I brought what you asked."

"Already?" There was a moment's silence. "You have it with you?"

"Yes."

"All right. Come up to the fifth floor."

Adegoke looked over his shoulder, then made his way to the elevator. His palms were sweaty despite the cool air, and he felt as if everyone

could see his wallet bulging in his back pocket. He should have worn his money belt instead. He had bought it when he first came to Lagos, having heard so many stories about how dangerous the city was, but had not worn it long: it was too inconvenient, and he liked having his money easy at hand.

Finally the elevator doors re-opened and he stepped out onto the fifth floor. He was in a waiting room, with a sofa and chairs, a receptionist's desk. "Hello?" he called. He heard no response, so he sat down on the sofa.

A few minutes passed before he heard footsteps coming down from the hallway behind the receptionist's desk. He got to his feet, swallowed, and patted the bulge in his back pocket. A well-dressed man with glasses, Igbo or maybe Yoruba, appeared behind the desk. "Hello," he said in BBC-accented English, extending a hand to Adegoke. "We spoke on the phone?"

Adegoke nodded, took the man's hand. "Yes," he said.

"Good. You have the money? A thousand dollars US?"

"Yes."

"Very good. With that I can get the account unfrozen—it should take about a week. When that's done I'll call you and—"

"What do you mean, a week?" Adegoke said. "Do you think I'm going to give you a thousand dollars and just walk away?"

"These things take time," the man said. "But I promise you, your investment will be amply—"

Adegoke reached out and seized the man's wrist, glaring at him. "Are you trying to scam me?" he asked. "Do you know who I am? I am Adegoke Omojoro. My uncle is Michael Oyelolo." The man's face went pale at the mention of his uncle's name, and Adegoke nodded. "That's right. So I want to see my share today, or I take my money and I walk."

The man pulled his hand away, reached up to pull at the knot of his tie. "Stay here just a minute, please," he said.

Crossing his arms, Adegoke watched the man go. He was glad he had thought to mention his uncle: Michael was the reason he had come to Lagos, the man who had gotten him his job, and his name opened doors. Adegoke smiled to himself, waiting for the man to return.

He didn't. Instead a taller man came down the hall, perfectly dressed in a dark suit. Adegoke's eyes widened, his arms dropping to his side.

"Hello, nephew," his uncle said.

Safrat had thought she would need to find a way to sneak Paul and the babalawo into the station, but the foreman was not there: only the night shift women were in their booths, and they saw nothing.

"What are you going to do?" Paul asked the babalawo.

"She needs to confront the spirit that is tormenting her," the babalawo said. "If it is coming through the machine, then that is how she must face it."

Leading the others down the station, Safrat found an empty booth. "I can do it from here," she said, "but once I'm in the booth I don't have any control over what job they give me."

The babalawo unshouldered his bag, started to root around in it. After a minute he drew out a small plastic pouch filled with a coarse brown-

and-white powder. "This is a medicine we use to face the eggun," he said. "If you swallow this and drink palm wine you will be half-sober and half-drunk, half-dreaming and half-awake. That is the only way to see the spirits directly."

Safrat took the bag, settled into the booth. "I won't need the wine, I think," she said. She hooked herself up and opened the pouch, felt the acrid tang of the powder burning her nostrils. "How much do I have to take?"

"Wet your fingertip, then touch the powder and run it over your gums," the babalawo said. She did as he had instructed, feeling a tingle run through her and then a buzz as the medicine started its work; just then the drugs started to flow into her from the hookup and she went limp.

At first it appeared the medicine had not changed anything: the vision feed of a sewer-snake faded into her view, twitching as she flexed the feedback motors. After a few moments, though, she noticed a strange double vision, both the sensory feed she was getting from the snake and something like a chain or a rope running down to it. With a prayer to Elegua, opener of paths, she willed herself up the chain.

The sewer-snake's vision faded from view as she rose, and after a moment she found herself in a space like a cattle pen. She saw herself there, or rather a thing that was labeled SAFRAT: it did not look like a person but a bundle of organs, a beating heart and lungs breathing in and out, hanging in the air. The chain led back down to the snake from it, and all around her were other bundles like it, labeled with the names of all the night shift women. Each had chains leading down from them to their jobs, vacuums or forklifts or dishwashers, but Safrat saw they had other chains leading into and out of them as well. Those leading out went in all directions, but the ones leading in all came from above. She tried to focus on one of the chains that ran down to the women, but instead moved herself into its path

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Safrat pulled herself away. Paul had mentioned her talking about watches; this chain had to be how the eggun was possessing her—possessing them all. She felt her heart racing, saw it echoed in the pulsing heart within the floating bundle labeled SAFRAT. The drugs normally kept her heart even, no matter how hard she had been working, but the babalawo's medicine had interfered with that. She made herself rest until she saw it slowing and then focused on the chain once more, following it upward.

She rose until she struck a wall of fire, and then she burned.

Adegoke's uncle led him back to his office, sat him down in a plush leather chair, then went to his desk and picked up a dark green bottle. He opened it, poured two glasses and held one out to Adegoke. "Scotch?"

Nodding gratefully, Adegoke took the glass and drank. It had a very different taste from palm wine, burning his throat like fire, and he coughed.

"Gently," Michael said. "Good scotch is to be savored."

"Thank you, uncle," Adegoke said. He took a much smaller sip, found it went down more easily this time. "I didn't expect to see you here."

"Nor did I think I would see you." His uncle held his glass under his nose and breathed deeply, then smiled and nodded. "I should hate to tell your mother you were so foolish."

"But uncle—" Adegoke's uncle threw him a look, and he let his head drop in shame. A vacuum cleaner sat on the floor nearby, idle.

"How did you get the number, anyway?" his uncle asked.

"One of the women at my station," Adegoke said. "She said she had been talking in her sleep. She wrote down what she had said, brought it to me—it talked about a fortune to be claimed, I thought—"

His uncle held up a hand. "Talking in her sleep?" he said. "That is unforeseen. It may be we need more time before we can roll out fully."

"I'm sorry, uncle. I don't know what you mean."

"Talking to myself," his uncle said. "Your girls—they have value as workers, of course, but what is much more valuable is the space in their heads. We can use each one of them to send a million messages every day."

"Messages?" Adegoke asked.

His uncle nodded. "Some are for ourselves, like the one that brought you here, but that is only a sideline. The world is a market, nephew, a million times bigger than the Mile Twelve, and people will pay us to be their hawkers—sell watches, drugs, anything or nothing. We feed the messages to your workers and the lines that let them run their machines carry the messages as well. When the rest of the World Bank money comes in, we can build stations all over Africa."

"But, uncle—" Adegoke felt a pain in his stomach, as though invisible fingers were squeezing him hard. "Uncle, this is black magic."

"What's happening to her?" Paul asked. For the first few minutes Safrat's body had been limp, as though she had been in the deepest sleep, but now she was twitching, writhing.

"She is burning," the babalawo said. He opened his shoulder bag again, started digging around in it.

"I should call the foreman," Paul said. "Disconnect the machine."

"Get water. Try to cool her." The babalawo pulled out his wooden tray and a wooden rattle with a brass head. He shook it in the air, then tapped it against the tray. "Elegua, open our sister's path. Clear the way for her."

Paul opened one of his water bottles, poured a stream onto his sister's forehead. She jerked her head away as it made contact, but her twitching eased slightly. "Isn't there any other way we can help her?"

"Elegua must open the path, and Safrat must pass through," the babalawo said. "But the orishas never make it easy."

The pain was intense, every inch of her body licked by the flames. Her muscles froze at the fire's touch, trying to recoil from it, but there was nowhere to escape.

She had a moment's respite, a cool touch on her face, and in that moment she reached out and seized the chain that led up through the wall of fire. Again words and sentences she barely understood ran through her, but she focused on climbing the chain up and through the wall.

Now she was in a space like one of the street markets: shapes her eyes

could not resolve flew at dizzying speeds through narrow alleys, while lights flashed over the hundreds of doors on every wall. Noise like the shouts of a hundred hawkers and the blare of a thousand car horns surrounded her, almost driving her back into the wall of fire.

Desperate to escape, she ran to the nearest door; its handle, though, was of a design her hand simply could not grasp. She ran to another door, found it the same: another door, then another, before finally finding one she could open. A chain ran through the opened doorway, and she followed it gratefully, glad to be away from the lights and the noise.

When she reached the end of the chain she got a sensory feed: just vision and motor feedback, a view of a carpeted floor and the bottom of a sofa.

The vacuum cleaner by Adegoke's feet suddenly whirred to life, moved a shuddering foot towards him. His hand jerked, spilling a few drops of whisky onto his trousers.

"Honestly, nephew," his uncle said, "do they really still tell you such stuff in the villages?"

"Uncle, I—" Adegoke looked down nervously at the vacuum cleaner advancing on his foot. "Is that how you won your position here in the city, by magic?"

His uncle shook his head, turned to the computer sitting on his desk and pressed a key that made the screen light up. "Do not talk of such absurd stuff," his uncle said. "I won my position because I had family willing to help me, like everyone else in Lagos." He ran his finger in a spiral pattern over the screen, then tapped it twice; the vacuum went dark and stopped whirring, a few inches from Adegoke's foot. "I went to Manchester Polytechnic, nephew, and I can tell you: there's no such thing as magic."

The sensory feed cut out before Safrat could see where she was, and she found herself back in the noise and light of the market. Though she was a bit better prepared this time it was still overwhelming, and she went quickly through the next door she was able to open: here she had only a timer input and a dimmer to control, but again she was disconnected and driven back to the market. Through the next door she connected with a speed toggle and feedback motors that controlled sharp metal teeth, again being disconnected after a few moments. Finally she found a safe haven, somewhere with no motors or visual but with numeric and audio input. She took a moment to calm herself—the drugs were not keeping her heartbeat even, she had to remember—only half-listening to the audio feed until she recognized her foreman's voice.

The lights dimmed and then flickered as Adegoke's uncle peered at his computer screen, frowning; then the shredder on top of his wastebasket turned itself on, grinding away at nothing.

"Uncle, do you see?" Adegoke said, his voice rising. "This is the cost of doing magic you don't understand."

"I told your mother to come with me, to the city," his uncle said, not turning from the screen. He ran his finger in a long curve over it, tapped it in three spots, and the shredder stopped. "I told her not to raise her

children in a backwater, but she wanted to stay by your grandfather." He took a deep breath, shook his head. "So I promised her, any of her sons that wanted to come to the city, I would get them jobs. She did not tell me she would raise them as savages."

Adegoke was silent for a moment, shocked by his uncle's outburst. He looked around at the now-quiet room, gathered his courage to speak. "You would not talk that way to my mother," he said. "She taught me to respect the eggun and the orishas, and she would not want to see her brother mixed up in black magic."

"For the last time, this is not magic," his uncle said. He spun the computer around so that Adegoke could see the screen. "This connects to the main server. I control all the machines in my office through that, and the messages to and from the women go through there as well. Do you see? Not magic, just technology. Technology we control."

Safrat listened carefully to what the two men were saying. She did not recognize the second voice, the one arguing with the foreman, but it was clear from what he had said that he was the sorcerer. The babalawo had said she must confront him, and she expected this was as close as she was going to get.

"Let the women go," the speakerphone said.

Both Adegoke and his uncle turned towards it. His uncle reached out for the TALK button, paused when he saw the light was already on. "Who is this?" he said angrily.

"Let the women go," the speakerphone said again. "Remove your spell from them, in the name of Eleggua and Oggun."

"Do you see, uncle?" Adegoke asked. "Do you see?"

"Will you shut up?" his uncle said. "This is no spirit. Someone has hacked into our server, and is playing games with us." He reached for the phone, stopped, and turned instead to his computer, swirling his finger over the screen and tapping it a half-dozen times.

"The women are suffering," the speakerphone said. "Let them go."

Adegoke's uncle let out a snort. "I've sent a message to our computer security team," he said. "This spirit will not be with us much longer."

Unsure what to do now, Safrat withdrew from the phone. She had confronted the sorcerer, but did not think she had changed his mind; she wished she could ask the babalawo for help.

A piercing wail cut through the noise of the market: police sirens. Down both ends of the alley she was in she saw flashing red lights, had no doubt who they were pursuing. There was no time to find another door that would open, and no reason to think she could escape that way anyway; all she could do was go back down the chain she had climbed, through the wall of fire, and hope she could hide amongst the other women.

To her surprise the wall did not burn on her way down, and once she was back in the cattle pen she moved close to the bundle of readouts that bore her name. She watched her heart beating, tried to make it slow enough for her to rest.

Now that she had a moment she could think about what to do. She tried to think of stories she had heard where people outwitted babalawos, but there were none: in the stories, evil babalawos were always undone by their own magic.

Looking around, Safrat saw all the other women in the cattle pen around her: bundles of hearts and lungs and brains, the sorcerer's messages being fed in and streaming out of them. She took a breath, readying herself for another trip through the wall of fire.

"She's burning again," Paul said.

Safrat's body was twitching again in front of them, her chest rising and falling spastically. A low groan emerged from her throat.

"More water," the babalawo said, shaking the bronze rattle over her head. "Elegua, bless our sister . . ."

Paul shook his head. "It's too much for her. We have to shut this off." He looked around at the booth, hoping to find a control he understood, but there was nothing. Instead he ran out into the hall of the telepresence station, looking for a way to contact the foreman.

The lights brightened, flickered and finally failed: only the glow of the computer screen was visible in the darkened office.

"Uncle . . ." Adegoke began.

"Secure the server," his uncle was shouting at the phone. "I don't care! Get it done!"

"What is happening, uncle?"

"That hacker crashed our server," his uncle said.

Adegoke heard the cellphone at his belt buzzing, picked it up. The call display showed it was the emergency phone at the TP station, programmed to autodial his number. "Excuse me, Uncle," he said. "Yes?"

Two men in short-sleeved shirts ran in the door, both holding flashlights. "I am sorry, Mister Oyelolo," one of them said. "We're getting too much traffic."

"Is this the foreman?" the voice on Adegoke's cellphone said.

"What about the firewall?"

"Who is this?" Adegoke asked.

"They're getting right through somehow. It's as though the messages were coming from our own system."

"Messages?"

One of the men read from the screen. "*Dear Sir: I have been requested by the Nigerian National Petroleum Company to contact you for assistance in resolving a matter . . .*"

"My sister Safrat is in booth—hold on—booth eleven," the voice on the phone said. "Something is wrong. You must shut it off, now."

Adegoke frowned, then looked over at his uncle conferring with the other two men. "Fix it," his uncle was saying. "Block them out."

"I am sorry, Mister Oyelolo, but we're not rated for that," the other man said. "This must be a problem with the architecture. Only the men from the Bank can fix it."

"But if they fix it—if they see—"

Adegoke lowered his phone, covering the receiver with his palm. "Uncle—" he said.

His uncle turned to look at him, his eyes hard. "Damn it, boy, can't you see that I am busy?"

"I am sorry, Uncle," Adegoke said. He held his phone to his mouth again, spoke softly. "Do not worry," he said. "I think your sister will be all right in a minute."

Safrat rose early, feeling better-rested than she had since coming to Lagos. The telepresence station had been closed ten days now, supposedly for repairs; the word was, though, that the old owners had given it up and let the World Bank run it directly. Meanwhile the foreman had paid everyone for the days when the telepresence station was being repaired, so long as they reported each day to collect their pay, and as the time passed they had all stopped talking in their sleep. Word had only come yesterday that the station was to re-open.

"I don't like you going back there," Paul said. "How do you know it's any safer?"

Safrat looked around at the crowded room, the waking and still-sleeping forms around them, and shrugged. The job Tinubu had promised Paul had never materialized, and most days he still sold water; if the foreman had not kept paying her they would have been back to sleeping on a plastic sheet in the alley.

"What choice do I have?" she asked, and picked up her buckets to take to the borehole. ○

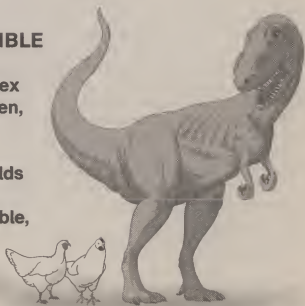
ANYTHING IS POSSIBLE

If the Tyrannosaurus Rex
could turn into a chicken,

As contemporary
evolutionary theory holds

Then anything is possible,
I guess.

—Peter Payack



OLD MAN WAITING

Robert Reed

Robert Reed tells us that, “for years, I saw a fellow sitting in the public library. He did nothing but sit, seemed to have no interest in books or other people, and his eyes were rather empty. I assumed that he was impaired in some fashion, or he was an alien in disguise. I chose one answer and started a story, and then the story changed on me.” Readers can find out more about the author at www.robertreedwriter.com.

People say I’m some kind of wild man. They claim I don’t have a Quit button. That once you get me going in any direction, then hold on tight, because it’s going to be the ride of your life.

Now why’s that such a bad thing?

I was downtown with some buddies, hanging out at one of the college bars. At least until one pimply kid said a few words that he shouldn’t have, and the bouncer suggested that I leave. Of course my friends tagged along, since my money was paying for our day. It was late afternoon. We walked up the block, and I spotted this fellow sitting by himself, filling up one end of a long bench, his left leg thrown over the right and his skinny arms crossed and that thin old face wearing an expression that almost fooled me. Almost. But then those big empty eyes glanced my way, just for a second. And I knew. Like that, I could see through him.

We walked past, but I couldn’t let it go. I had to stop and look back, and one of the guys asked, “What’s wrong?”

“Him,” I said.

“That old guy sitting? What about him?”

“He’s not.”

“Not what?”

“What he looks like.”

They’re right, you know. Once I get going, I can’t stop. That’s why I marched up to the bench and sat down, close enough to touch the old boy but careful not to lift a hand. With the others watching, I waited. With me

right next to him, the fellow did nothing. He just pointed his eyes at the side of a bank building, his mouth working now and again, those legs staying crossed and his arms sometimes pulling closer to his chest before relaxing again. He looked like a pile of habits. "But you're not that empty," I said to him when the traffic noise fell off. "I know you're not. I can tell."

My buddies were standing at a safe distance, staring.

"What's going on behind those baby blue eyes?" I asked.

His mouth smacked. His breathing came deep and slow. But he didn't look my way, even on the sly. And I knew for sure that he was playing with me, if you want to know the truth.

One guy called to me. "Benton," he said. "Come on."

None of them would risk coming close.

A cement mixer drove by, neither one of us jumping. Then the roar fell away to a low rumble, and that's when I finally leaned close, saying, "I know what you are. I've got it all figured out."

The fellow didn't blink or change his posture. But he was listening. I could tell that he was waiting for whatever I said next.

"You're an alien," I told him.

Nothing.

"An alien scientist. And this is how you study us. You and your science pals . . . you dress up like senile fools and sit in our public places and watch us march past, listening to our talk and smelling our farts too, for all I know."

He breathed again, and his arms tightened.

"Am I right? Huh?" I jumped up and laughed. "If it's not that, it's something else. And I'm going to figure out what."

That's when my buddies had enough. They came over and grabbed me by the arms, pulling me along.

"What'd you say to the poor gent?" somebody asked.

"Something crazy," another guessed.

"Something stupid," said a third.

I didn't answer them. I was too busy watching my newest buddy, and sure enough, all of a sudden those empty eyes turned toward me, something real pushing through the blueness. Behind the eyes, he was intense and very smart, and shrewd too. Maybe even a little angry.

"See?" I said.

But except for me, nobody was paying attention.

You know how it is? Let somebody inside your head, and suddenly you're seeing them everywhere.

I know this big blond gal with a dragon tattoo riding her shoulder. She likes to sit at the Zoo Bar, waiting for guys to buy her drinks. And there's this Hispanic character who's really thirty but looks like a kid—shaved and barely five feet tall. He's usually somewhere downtown, riding one of those little bikes that can do tricks. They're just two of the people that I've bud-died up with since moving here. But this was the first time I'd put them together. The three of us were standing in the morning shade next to a Greek restaurant. Up the block was an ATM. I was wondering, just to pass the time: How much would it take for me to coax them into a three-way? The blond would want a few bucks, just on principle. But what with that

machismo crap, the bike rider would need a pile of bills. How big a pile? I was thinking that through, doing calculations, and that's when a city bus pulled over and out stepped another one of the familiar downtown faces.

"Either of you know him?" I asked.

"I don't," said the blond.

"I see him, sure," said the biker. "In the afternoons. He likes to sit on the benches."

"Oh, yeah. That old guy's a fixture down here," she added.

"I thought you didn't know him," I pointed out.

"I don't know his name or anything." She's big and a little beautiful, but her brain has been polished smooth by a lot of hard drinking. "But I've noticed the guy. That's all I mean."

"Where you going, Benton?" the bike rider asked.

"To make a withdrawal," I announced.

Everybody who knows me knows about my withdrawals. The rumor is that I'm sitting on a giant trust fund, or at least a bank account that doesn't have any bottom. Ask anyone, they'll tell you: "When Benton gets cash, something fun is sure to happen."

Three times, I swiped my card, building up a stack of twenties.

My friends were waiting, all smiles now. But I was watching the old guy moving away from us, shuffling down the block and then vanishing inside the downtown library.

I walked on past my buddies.

"Hey," they complained.

Stopping, I handed each of them a young twenty. "I'll be back," I promised. "Do what you want, but nothing too interesting. Understand?"

They didn't, but that didn't stop them from smiling.

The library was going to be trouble. Stepping inside, the first thing I did was look at the guard's desk, finding it empty. Which was good news. The next success was spotting the old man right away. He was sitting behind a little table, facing one of the windows that looked out over the sidewalk. A couple librarians recognized me, but they didn't matter: As a rule, librarians are about as dangerous as the chairs they sit on.

I pulled up a free chair next to the old man.

Sitting, I plopped down my stack of twenties. "Admit what you are," I said, "and this money's yours."

Weeks had passed since our last meeting, but very little about the fellow had changed, including his clothes. He liked white shirts and dark dress trousers, but no belt. And his white socks were slipped inside old leather shoes that looked too beaten up to be comfortable anymore.

If either eye looked at the money, I didn't see it.

So I lifted the stack, wagging it in front of his face.

Except for closing his eyes and sighing, nothing happened.

"Okay," I said. "You're not an alien scientist. I guessed wrong. Instead, I'm thinking you're from the future. A thousand years from today, and you've come back to watch your ancestors do important, historic deeds."

But then again, the view from the window was pretty boring. An empty bus rolled by. Sparrows pecked at dead crap. Then a couple fat secretaries trudged by, hunting for their morning coffee.

"You're from the future," I pressed. "Am I right?"

The blue eyes were growing wetter, but not enough to tear.

"I'm just curious," I promised. "Really, I just want the truth."

A voice behind me said, "Sir."

I turned, discovering that the library had made at least one recent personnel change. The new security guard was a young guy with short hair and the super-serious manner of a kid who wanted nothing but to grow up to be some kind of cop. He looked powerful, full of importance. Even his uniform, clean and pressed, gave off a loud "don't-shit-with-me" message.

"Sir," he said. "I can call the police, or you can leave right now."

"I know, I'm leaving," I told him.

Then the kid noticed my money. "Who does that belong to?"

Was it mine or the old man's, he meant.

I saw how this would play out. I'd say it was mine, and he wouldn't believe me. And that's when the cops would be called in. This kid was hungry for action, and saving some helpless senior citizen from being robbed seemed like a delicious bit of heroism. So I just handed the stack to the kid. "I found the money sitting on the table," I said, putting an end to his fun. "Maybe it belongs to this gentleman, and maybe not. I guess you'll have to figure that out for yourself."

More than a thousand dollars lay in those big young hands.

Outside again, I stopped next to the window and watched the comedy unfold. The kid was trying to talk to the old man, asking questions that weren't being answered, and all the while he was trying to figure out which pocket could have been a home for that much cash. Then one of the librarians made his appearance, dispensing little nuggets of advice. He pointed to the old guy's skull and offered words that looked sad and sorry. Then the librarian glanced my way, and with a grim sneer, he said a few more words.

The kid nodded while shooting me his best withering stare.

And all that while, the old guy was looking out the window with an expression that never changed. Except no matter how empty they seemed, those eyes always managed to point my way.

I couldn't give him up. Not for anything.

But I didn't want to just track the old guy around town either. I had a life to enjoy, and I didn't want the aggravation. So what I did . . . I put all my friends and their various buddies on the payroll. I was offering tens and twenties for reports about the fellow's wanderings and habits. And over those next weeks, I managed to learn quite a lot about my subject's movements.

Six days a week, he rode the Bleaker Avenue bus to the Thirteenth Street corner.

Every morning, he walked the same route to the library and sat beside the same window for exactly three hours. He never opened a book or magazine or even spoke to anybody. Then he picked himself up and walked two blocks to the old Heartland restaurant where the waitress always brought him the same dish—meatloaf and peas and mashed potatoes—and he ate about half of everything before giving up and walking out again.

"He doesn't pay," the big blond told me. "Doesn't even leave a tip."

"But the people working there . . . they don't seem to mind," said her new boyfriend. The little Hispanic guy and the blond had made themselves some good money working together, and what do you know, they'd discovered that they liked doing it for free too?

"It's mind control," I suggested. "Whatever that creature is, it convinces people that they've been paid, even when they haven't been."

"Except he's not a creature." One of the guys with me that first time I saw my nemesis was sitting with us. The four of us were sharing a table in the Zoo Bar, trading notes. "No, Benton, no. The poor guy's exactly what he seems to be. A senile old fart."

"You haven't looked inside him," I pointed out. "Not like I have."

"Hey, dude. I'm the one tracking that bastard around town. Not you. So how come you think you can see things I don't?"

"It's the little things I notice."

"Yeah?"

"And that's true with all kinds of people," I told him, and everybody else too.

Nobody was agreeing with me. Just by looking, I could tell they didn't believe me. So I threw out a challenge. Five twenties set between two empty beer bottles. "Each of you, point to one person. Pick some customer. Make it somebody you don't know and I don't know either, and I'll look them over for five seconds and then tell you something interesting."

The smart-mouthed guy, thinking of himself as being good-looking, pointed to the best-looking woman in the place.

"She's a dyke," I said. Pointblank.

"Well, I know that," he lied. "What else?"

I didn't have to look at her again. "She's been through college. Definitely. And I think she works as a nurse or a paramedic. Something medical, with odd hours."

He started to stand, ready to check out my story.

"And another thing," I added. "There's a gun in her purse."

That made him pause. Then he nodded and took a deep breath and walked up to the bar, buying a round for him and his new lady friend. The two kids chatted amiably for a few minutes, my buddy waiting until the end to ask his big question. I could see her saying the words, "How did you know?" Then he came crawling back to our table, telling me, "Lucky guess about the pistol."

The blond already had her subject picked. "See that sad man in the back . . . can you tell me why he's sad. . . ?"

I'd already given the fellow a good study. "Somebody died," I ventured.

"Who?"

"His wife."

"And how would you know that?"

"Watch. He's talking to her every now and then. And he's angry about something." With a shrug, I added, "One spouse usually gets pissed when the mate dies. How can you leave me with these bills? With this loneliness? Why did you abandon me like this?"

The blond shrank down in her chair. "Okay, I believe you. I don't want to bother the gentleman . . ."

Now it was her boyfriend's turn. The little bike rider gave me a wide smile, and staring over my shoulder, looking at the front door, said, "I have somebody for you. She's walking through the door now."

The others felt encouraged. They sat up straighter, trading little glances.

I glanced back and then stared straight ahead again.

"She's looking for somebody," I reported.

They asked, "Who?"

"Me," I said. "She wants to talk to me."

The skinny middle-aged woman came up from behind, and after a deep breath, she said, "Are you Mr. Benton? We need to talk."

I pocketed my twenties, stood, and showed my guest to a private booth.

"Before the Alzheimer's struck, my father was a genius."

She had his blue eyes and the same bony long face.

"He was a tenured professor with an international reputation," she continued. "A scientist who did important work that helped thousands of people. And then a few years ago, his mind started to leave him."

"Why are you here?" I asked.

"I want you to leave my father alone."

"I never go near the man," I replied.

"But your friends do," she countered. "I've heard stories. A librarian who knew Dad when he was well . . . he says that two or three of your little helpers are always hanging around the library . . ."

"If he's so sick, why's he go to the library?"

"Because he loves books," she said. "Even if he can't read them, he enjoys being surrounded by them."

"You know this, do you?"

She didn't answer me. Instead, she said, "Where he eats lunch, I have an account . . . the waitress who serves him just told me that one of your people stole his leftovers yesterday . . ."

"I wanted to see your dad's bite marks," I said. "I'm working on a hypothesis."

Her long face colored.

"If your dad's so sick, why's he running free?"

"He does well enough. If people leave him alone, he can fill up his day without harming anyone."

Unlike you, she meant.

"Here's the thing, lady." I made sure her blues were fixed on me. "I can see something inside that old guy. Not always, and it's hard to spot. But believe me, he's just pretending to be sick and stupid."

Her reaction was abrupt, powerful. Despite her suspicions about me, she had to smile. A face that was very much like the old man's suddenly lit up, and she started asking, "Do you mean that?"

But then she remembered why she was there and closed her mouth.

"Why the smile?" I asked her.

She hadn't known that she was grinning. But once caught, she admitted, "There's a special program. A research project. And my father's part of it."

Now this was interesting. "What kind of project?"

"An experimental drug that might reverse Alzheimer's."

"And your dad's getting it, is he?"

With a strained hope, she said, "Maybe. But it's a double-blind study. Half of the participants are getting sugar pills."

"Now that sounds cruel," I decided.

After a moment's reflection, she had to agree with me.

"Here's what I think," I continued. "My present theory is that this thing you call your father isn't. What it is . . . it's a projection from a higher dimension, sent into our little three-D world on some kind of field trip . . ."

If she'd had a pistol in her purse, she would have shot me. But instead of bullets, she used her angriest, most dangerous voice. "You are very ill," she informed me. "I don't know what kind of sickness it is, and frankly, I can't make myself care. But from this minute on, Mr. Benton, you and your tag-along friends are going to stay away from my father!"

A month passed, then another.

The old man halfway wandered out of my crosshairs. But that wasn't because of anybody's screaming threats. Other subjects had taken over my head, that's all. I got interested in a pack of little people, plus some very big ones. Preparations had to be made, personalities mixed and matched. And then came the kinds of fun that everybody else in the world sees as nothing but wild-ass mayhem.

When I happened to notice the old man, it was just in passing. Our paths would intersect, and there he would be—keeping to his schedule, always wearing the white shirt and dark trousers. I might give him a hard look or two before walking away, and when he didn't think I was watching, he'd turn, throwing those vacant eyes in my general direction. I could feel the eyes, just for a second, just taking his measure of me.

I always intended to return to him, but didn't.

Then came a rainy fall morning. I was walking alone, passing the library on my way to the ATM, and this face that I'd never seen before suddenly appeared next to me. The face belonged to a man in his middle forties—a prosperous soul wearing a good suit and polished shoes and the grimmest little mouth. "Do you know who I am?" he asked.

I didn't.

"My wife didn't mention me?"

That whittled the list of candidates down to four, maybe five.

The angry husband glared at me. Then he let his eyes lift, giving a nod to people standing behind me.

Too late, I tried to run.

A couple big boys grabbed me up and dragged me into the alley. I recognized one of them, although I couldn't tell you how that kid and the fellow in the suit got together. Really, if you think about it, nothing's more amazing than the ways lives cross over with each other, tying the world into one fat knot.

The kid that I knew started to cuss me out.

His buddy was even bigger and maybe twice as strong, and he didn't talk much. Judging by my experience, I'd guess that I wasn't the first person that he'd beaten senseless, either.

When the pummeling quit, the angry husband got down low. "Leave my wife alone," he told me. "Understand?"

Spitting blood, I asked, "Which wife is yours?"

He heard that as an insult, even when it wasn't. Really, I was just curious, that's all. But he pulled a tire iron out from behind a dumpster, holding it in both hands. Unlike the hired muscle, the suit-man didn't have experience in measured brutality. He stood over me for a long moment, trying to figure what he could break without actually killing me.

Then the bigger kid suddenly turned and ran off.

And the smaller one grabbed at the tire iron, saying, "Stop, somebody's coming. . .!"

Steel fell on old bricks, and the ringing sound lasted for what felt like days inside my soggy head. Twice I tried to stand, and couldn't. Then I noticed a pair of worn-out loafers and white socks and good trousers worn thin at the cuffs. The old man was standing in the alley, in the cold rain. His face looked as lost as ever, but somebody—himself or maybe his daughter—had taken the trouble to dress him up in an old yellow raincoat.

After a couple minutes, he sat on the bricks beside me.

Busted ribs made breathing tough work. And I had to fight just to find enough air to say, "Hello."

Now those baby blue eyes changed. And with them, a face that had never shown any trace of emotion suddenly broke into a wide bright smile.

People's voices usually match their faces and their souls. Suddenly I heard a professor's clear voice, smooth and practiced, every word seemingly thought out ahead of time.

"I have been gone for a very long while," he told me. "But the wait is over now."

"Is it?" I managed.

The eyes, like polished gems, casually studied the gore on my face. "You're mistaken, of course. I'm not an alien researcher, or a time traveler, or any of these other exotic entities that you have suggested."

"No?"

"But I have watched you, sir. And I have listened carefully to everything that my daughter says about you. I have considered your oddness, and your endless money, and how easily you seem able to manipulate others. And from everything that I have learned, I have decided that you might well be."

"Might be what?"

"Something more than a simple, unalloyed human." The laugh was boyish, loud and joyful. "Perhaps you are an extraterrestrial researcher or some higher-dimensional agent. Honestly, your precise origin doesn't particularly matter to me. What counts is your conduct during your existence on my world. An existence that from my point of view looks unprofessional and rather sad, too. Honestly, sir, you injure every serious researcher with this childish, unfocused chaos of yours . . ."

For the first time in my life, I was speechless.

"Rest," the old man advised. "Let your body heal. And when you are whole, come find me." The bony face had a lovely smile. "Think of the studies we could design, my friend . . . if your talents and my experimental proficiency can work together . . . plying the depths of the human animal . . ." ○

LUCY

J. Chris Rock

J. Chris Rock is an alumnus of Denver's Lighthouse Writers Workshop who has twice been nominated for The Pushcart Prize. His short fiction has been published in several journals including *Cimarron Review*, *Hobart*, *Barrelhouse*, *Opium*, *McSweeney's Internet Tendency*, and *The Science Creative Quarterly*. The author can be reached at www.myspace.com/gladyouasked. His story about the difficulties two scientists face achieving successful communications with Titan as well as with their neighbors, is his first for *Asimov's*.

Even here, below the black waves, it hears the magnetic winds blowing off Saturn in a modulating chatter of clicks and static. It hears without ears, sees without eyes. Everything is an unending string of code. Sound, light in all its wavelengths, pressure, composition, temperature—ones and zeros, indistinguishable. It has a mouth of sorts, which takes in the prebiotic sea and passes it along for evaluation, decontamination and, eventually, ejection as part of its propulsion system. This is what it does, what it was built to do. It siphons in the world.

Data pours from its stubby antennas at the speed of light, emerging from the sea's oily surface without a ripple and, for a fraction of a second, flying through a sky hugging a rocky landscape of muted rusts and yellows and purples. The transmission races through sheets of ethane before plunging into blind orange nitrogen smog for a few more millionths of a second, a few hundred more kilometers, until it surfaces into the thinner gray of the upper atmosphere, where dim but fast sunlight is smashing bits of life from the gases and raining them down into the haze and thickness below.

Gray simmers into black. The data is caught by an orbiter and ricocheted into open space, never slowing, a thread of light, for an hour and a half across 2.2 billion empty kilometers. In all the possibilities it finds exactly one, a small parabola on a relay satellite orbiting Earth, and from there bounces the short distance down to an even smaller dish mounted to crumbling brick outside the window of an apartment in Hell's Kitchen.

The data string is pulled between tin cans impossibly far apart, the longest known straight line. Numbers bounce back from the Hell's Kitchen dish, retracing the line. Time spools out behind them until final-

ly they dive again into the distant orange world, into haze. They rain down invisibly from a thick sky into the black sea and find it below, waiting, always waiting.

It pumps fluid from its external hull and begins to rise.

"Lucy!"

The name bounces off the apartments across the street and echoes down the block over the distant rumble of traffic. I picture the combined incident and reflective sound waves of the name expanding in every direction like an explosion, a silvery dome, two long syllables spreading and growing.

Looooooooooooo!

Even through the windows I can hear the smile behind the name, that gleeful approximation of Desi Arnaz. After a few more calls comes the jingle out on the fire escape, the by now-familiar skittering of untrimmed nails on flat metal steps. A dirty ball of white bounces past, going up. Lucy.

"Desi's a looooooser," Elgin sings into his monitors, mimicking the disembodied voice from upstairs. We'd never met the man we called Desi, never even seen him.

"At least he's interesting," I say. This is how El and I talk, words aimed into monitors, eyes on the job.

"What is it with you and weirdos?"

"What?"

"They've got like Brad gravity. Every misfit totally sucks you in. Sometimes a freak's just a freak."

Lately, El and I had slid into the role of a bickering married couple, forty years older and spouses instead of work partners. Fred and Ethel to the Desi upstairs. We even knew when to stew in our respective bitter silences, like now. An uplink lag had been irritating us all morning.

I keep arguing with El in my head. Desi is far from your average freak. The man takes inexplicable joy in calling a dog he doesn't seem to like. And, okay, Lucy isn't entirely likeable. She's a shaggy fist of hair with a lopsided face shoved into one end, that ugly indeterminate breed of lapdog whose sole habitat is apartment buildings. Of course he doesn't like her. Nobody likes her. But then why the constant, singsong call? Why so damn happy?

And Desi goes beyond not liking Lucy. It's borderline neglect. He never bathes her, which leaves her coat matted and smoker's teeth yellow. He never walks her. Instead, she roams the fire escape out front, even in the rain. Park, fence, toilet, all in one.

Every time she bounds upstairs, the whole thing gets more twisted. Desi usually grunts something that sounds like swearing in another language. Sometimes she yelps just before the window slams shut, like he's grabbing her violently, yanking her inside. Desi and Lucy are playing out some tragic soap opera just above us, and every day we listen in.

I can hear Elgin tapping away at his workstation, typing a little too forcefully, still irritated at the lag or me or both. Some days, the isolation got to us.

Desi's call was the closest we'd come in three months to meeting anyone. Our block in Hell's Kitchen was still transitional, still odd and full of its Desi-like characters. The strangeness was why we'd picked the place.

Or rather why I'd picked it; for Elgin it had come down to cheap rent. In the entry downstairs, all the other mailboxes were labeled in unsure ball-point ink—Krydastak, Hatami, a few tangled nests of kanji. The neatly printed logo on our mailbox stood out like neon. Bel Robotics, LLC. The name had been a compromise. I got the first initial, Elgin got two to my one. Everyone probably thought we made hi-tech sex toys.

Even with the occasional flare-up, El and I were used to being alone together. We were paired up at Columbia our junior year by the rule we all knew by heart, a system created around the turn of the millennium that made a lot of sense. DPP—Dual Partnering Protocol. DPP stated that robotics was a parental science and therefore no one worked alone. It takes two, so to speak. One unintended side effect of DPP was that it gave geeks like Elgin and me at least one much-needed friend.

Right away, we had found we shared the unchanging history of nerdy outsiders. El was an overly bright second-generation Pakistani American—Ameristani, he called it. He graduated from high school at fourteen. I'd been a fat math whiz until I hit puberty, way late, which channeled some of the flab into height but did nothing for my social prospects. The result was the same for both of us. We were outside, unwanted. DPP created an inside we'd never known.

By the time we'd hit the robotics graduate track at Columbia, El and I also shared a dream of living in one of the science cities at the poles. Elgin was partial to Antarctica. I would've taken any place that let us spend our days growing beards and driving bots under luminous, blue-white landscapes. Our semi-autonomous dissertation was on arctic hydrobotics.

Then our grad advisor Schlesher, of all people, had come along and told us we were in the right place at the right time.

He'd stood over us in the student union snack bar, in his standard sweater-vest bowtie combination, glowering and redirecting the rest of our lives. He always seemed disgusted to be touching the same things as everyone else, even the ground.

"The new director at NASA is swinging for the history books," he'd said. "They're subcontracting to anyone and everyone." The previous week, two MIT grad students had landed a grant for an abrasion tool on the Europa rover. It's a boom, he told us, pushing it all in his tight, lined voice.

"Analogous to the internet boom when you were a toddler, Mr. Tolthom. And before you were born, Mr. Elgin." I didn't know which was worse—the fact that he had used my last name or that he hadn't even tried El's. He managed to turn even his own envy into disdain for us. We got the future he deserved.

Then he had come to his point. "Ice cap science is a dead end, gentlemen," he'd said and we squirmed. Our imaginary beards evaporated a little. "Do not ignore the opportunity you have to change how we define our world."

He looked at us each in turn, as if holding back the best for last. Then he said, simply, "Do what you can do." He set a book on the table and walked away—a book about Titan, Saturn's giant moon. Schlesher's card had been shoved in halfway through, marking an infrared shot of an enormous black sea in the southern hemisphere called Mare Octagium.

"Lucy," Elgin tries to say between fits of laughter. "That's . . . we gotta . . . oh shit . . ."

I'm on the floor, and I am not laughing. Lucy is still snapping at us through the closed window, black lips pulled back to reveal uneven little teeth. I can see white lines of drool on the window where she'd hit.

Like an idiot, I had tried to pet her out on the fire escape. I had opened the window and stepped out, patted my thigh, even smooched the air a few times. Much to Elgin's delight, I'd gotten the full-on tiny dog attack. She charged up the stairs letting out one long, yippy bark. An involuntary kick knocked her down a couple of steps, but she bounced and came scrambling back. I had fallen ass-first through the window and El slammed it shut just as she hit. She'd actually hit the glass.

"Dude . . . Christ . . ." El can't even breathe. Sometimes the age thing shows.

Looooooooooooo! Oh Looooooooooooo!

It takes Desi a few calls to get her away from our window, away from her pasty-skinned prey, but she finally does a kind of sneeze, then spins around for the stairs. The upstairs window slams shut.

Elgin gathers himself, bent over, hands on his knees. "7:30 call," he says. "Bingo."

Desi calls Lucy at two very particular times each day. 7:30 AM and 3:45 PM, like giggling, riotous clockwork. Desi is a little unhinged, maybe, but the man is definitely punctual.

El looks at me still sprawled on the floor and, of course, bursts out laughing.

Hours later, he comes up with the idea.

We're at our workstations, facing each other behind banks of monitors in the center of the open room. Cords snake off under patches of duct tape to the closet, where we keep the server and backups, and out through an uneven hole in the brick to the dish outside. Our ratty green couch is angled at the corner, facing the TV we never watch. Two doors on either side lead to small, unadorned bedrooms.

"Seriously though," Elgin says, his mouth full of Fritos. I can smell them, that gross wet corn mush smell. "We should name the bot Lucy. It's perfect. I'll tell the Whites right now. They'd love it."

Elgin has a name for everything. The guy upstairs is Desi. Schlesher is the fairly obvious Sphincter. And the science guys on the Titan sub are the Whites. The Whites are all in New Delhi and not remotely Caucasian, but they always seem to be wearing white lab coats on the camlink. We have no idea why.

The Whites are the yin to our yang. We designed the bot and drive it. They do the experiments and digest all the data. Officially, Elgin and I are known as Operations Engineers. Elgin calls us geek cabbies. He'd already tried to name the bot twice—Sparky and Oddjob.

"El, you know we can't name it Lucy. We can't name it anything."

"We totally can, it's our bot."

"It's NASA's bot. They paid for it, they name it." I was getting tired of saying it.

"TMFSS2027 isn't a name, it's a disaster. If we named it Lucy, they'd love it. Probably even get it back in the press."

I glance at numbers flowing down the right side of one monitor. "We can't name it after a loser. You said it yourself, Desi is a loser. Pressure's coming up, probably another wave. We shouldn't be on the surface."

"I'm watching. The Whites are doing another aerosol grab, done in five. And Desi is a total loser. Freakjob. I'm not saying him. I'm saying Lucy. Lucy's a badass."

"We don't have five. Let's go." I draw two small circles and double-tap, bringing up the link with New Delhi. Another sweep brings up navigation override. "Lucy's mean," I say.

"Don't be such a puss."

"And ugly."

"It'll be like Desi is calling out to our Lucy every time. Across the void. It's beautiful."

I run pre-submersion system checks. "If he loves that dog so much why doesn't he give her a bath?"

"Who cares?"

"He treats her like hell. I don't get it."

"Say it."

I type.

"Lucy." Elgin says it like a conclusion. "They're the same size and everything."

A mechanical twin of the sub sits on the pedestal between our stations. It looks like a silver beetle trailing two black pontoons and is, in fact, about the same size as the vicious little dog. Sunlight is bouncing off its carapace. It seems like something that belongs in the light, shining instead of pushing through oily sludge. A couple of billion kilometers away, its sister bot floats on Mare Octagium. Even on the surface, the sun barely reaches it. On the rare good days, the sun's brightness would be one one-thousandth of what it is on Earth. A half-watt bulb, worse than darkness.

We were T-Plus fourteen sols from splashdown and the bot had performed flawlessly, apart from the recent lags. It was one of the few instances where *Faster, Cheaper, Maybier* was paying off. The Whites had made solid finds—evidence of cryovolcanism in the islands, a sounding of the seafloor accurate to microns, and the biggie, an unbelievably high amino acid count in the sludge. Exobiologists had gone nuts over that one. The poisonous soup we drive through every day is fat with the potential for life. If it weren't -180°C, if you add a tiny bit of liquid water—Titan is only a couple of ifs away from being a zoo.

I watch numbers streaming in. Every bit of data is a testament to Titan as a real place instead of just an image, not a what but a where. El and I had done that. Us.

"If we call it Lucy will you just shut up and drive?"

"Her," Elgin says.

"What?"

"Lucy is a her, not an it. We've got ourselves a girl bot."

"Fine, just . . ."

"I am, I am."

She sits on a gasoline sea, caked in frozen sludge, and sees the world in bifurcated paint-by-number. Black glass spreads out before her, ringed in the distance by knuckles of land in salmon, rust, yellow, pink—truncated buttes to the east, sharp peaks to the west. Mount Ida, to the north, rises

three kilometers before disappearing into pale cream mists of ethane.

In visible wavelengths, she sees nothing above the perpetual haze deck. The sky on Titan is a wall, not a window. In infrared, the wall dissolves and she sees half a sky filled by a sweep of immense rings, the monstrous edge of Saturn looming over a too-close horizon.

The wave begins as a rise to the southwest, a black dais gathering itself, blotting out the pastel mountains. Strong winds pushing up from the south polar region, blowing across the sea, raise waves that are impossible on Earth. Her sonar shows the surge to be three hundred meters above sea level and growing, but moving at a glacial pace. Numbers stream into the close orange sky, passing along the slow approach of hulking sea.

When she receives the command to ballast and dive, she is already tilting into the massive trough of the wave, the black curtain over her covering a quarter of the sky. She pushes into the thickness and is only a dozen meters under the surface when the crest, half a kilometer high, rolls overhead. The surge of thick fluid spins her for the next three hours. She receives a stream of panicked instructions, compensations and attempts to regain control. Tumbling slowly, she continues to observe.

As the wave recedes slowly to the east, she surfaces. The sludge crusts and freezes on her again in another uneven layer, turning a purplish black. She measures and records as subsystems run diagnostic checks. Numbers pour into the sky. Lucy, it seems, is fine.

"So you get a lot of business? Here?" Every time, I try talking to the misunderstood perfectionist of a barista down at the corner. And every time, I screw it up. Like now. He just looks at me and lets me realize that I had asked a stupid question. I try very hard not to count how many silver rings crawl up the outside of his ear. We don't know his name. Elgin calls him Spunky.

The coffee shop sits between a Ukrainian porn store and a place that apparently only sells fire extinguishers. The block hasn't turned enough yet to support an eight-dollar latte kind of coffee shop. We're probably the only latte customers he has, and he still doesn't like us. I want to tell him about Lucy, about Titan, but I figure it won't make a difference.

We had needed something following the Freaking Wave Fiasco, as Elgin immediately dubbed it. Lucy was fine, but El and I needed comfort-ing, which came in the form of lattes from the shaved and pierced coffee guy who preferred no friends to us.

"You ever hear that guy?" I ask. "The guy who calls Lucy all the time?" Spunky gives me an eyes-closed *no* as he hands over the lattes. I drop my change very deliberately into the tip jar.

The weather had turned cold again, New York's indecisive springs. Heading back up the block I can hear Desi overhead, calling ecstatically for Lucy. *LoooooosEEEE! Oh LoooooosEEEE!*

His 3:45 call. I can just barely make out a dark face framing a smile in the fourth-floor window. Lucy's bell jingles from somewhere on the fire escape. I picture the name flying straight up, passing through the blue sky overhead and continuing into darkness.

I fumble the outer door open and find myself, for the first time, face-to-

face with a neighbor. Two neighbors, actually—a middle-aged man and a teenage girl, father and daughter, standing at their open mailbox. They're the same vague ethnic mix as we imagined Desi to be. The man is stocky with an out-of-date but meticulous haircut. His thin coat is open and a gold necklace dips into the horizon of a hairy chest. The daughter has pitiable skin and a weight problem. Her straight black hair is pulled into a ponytail. Her arms hang on to a nonexistent life preserver. I hate that I think it, but she looks like a Before picture without the saving grace of an After. I want to tell her it's okay. We'd made it, so could she.

The door bangs shut behind me and I realize I'm standing there, holding lattes and staring. The man stares back. The girl's eyes are locked on the tile floor.

"Hi," I say, lifting one of the cups.

"Hi," the man says with a phlegmy H and no smile.

"I'm Brad. Nice to meet a neighbor."

"I am George." George, with two heavy Gs. Elgin's smartass monikers come into my head. Angry George. Very Ethnically Indeterminate George. The daughter's head stays down.

Oh Loooooseeeee!

The call comes through the front door, muffled but echoing, expanding into the city and the sky. I smile and shake my head but stop. George is staring a hole through me.

"That guy," I try, gesturing with a latte.

"He is a pig," he finishes sharply, and slams his mailbox shut with a crash of keys. The daughter sniffs and George mutters something that sounds like *Lou What*, shaking his head. They turn and start up the stairs, and I see it. I see the answer to the question that hangs in the air every time Desi sings happily into the world, into a billion kilometers of cold, empty space. It stares at me from the girl's backpack. The fabric everywhere else has faded, but where the letters had been is still a deep, unavoidable blue. *Lucy* it reads, in big capital letters across the top. There's still a piece of thread hanging from one of the empty stitch holes.

"His daughter," Elgin says.

"Yes," I answer, eyes on my screen.

"Lucy."

"Yes."

"Oh man." Elgin stifles a laugh.

I knew he'd find it all hilarious. The poor girl. "I'm still getting some odd feedback on the flash memory, so . . ."

"It's nothing."

"We can't lose that."

"We won't. Lucy's strong. She's mean, remember?" and Elgin barks. We tap and work. "So do you think, is it like a feud or something?"

"I can't imagine," I say.

"Like maybe George gave Desi grief about the dog crapping on the fire escape and Desi struck back."

"Maybe."

"Or what if Desi has a son that's her age, right, and she had a crush on

him, asked him to a dance or something. He turned her down and told everybody, even his dad. Dad names his ugly bitch of a dog after the ugly girl who asked his son out. Paternal pride being what it is."

"It's just Desi up there. And the dog." The poor dog.

"It's gotta be something. That's some cruel shit. How long has it been, do you think? I mean, since we moved in but . . ."

"Does it matter?"

We work in silence. Elgin had little sympathy for others. He'd told me once that during his freshman year in high school a group of boys had beaten him up every week without fail for an entire semester. He was eleven, and nobody had helped him. His opinion was, we're all on our own.

Finally I say it out loud. "We have to change the name back. Not Lucy. We can't be a part of that."

"Too late, the Whites bought into it. Plus it's not up to any of us anymore. There's already an article online about the new name. Done and done."

My eyes feel stiff. Numbers on the screen scroll by.

"Look, it's shit, I know," says Elgin. He knows I hate this. "But think about it like we're balancing out the cruelty. We named this incredible thing after her, this pioneer. Right?"

"That's true." I say it like I don't believe it.

"Goddamn historic is what it is."

Loooooseeeee!

It comes through the windows over the muffled sounds of traffic. Now it made sense. Desi called when the girl went to school, and when she came home. He probably had to scare the dog away, just so he could get the pleasure of calling it back. At this point, I imagine the dog doesn't know whether it's wanted or not. No wonder it's mean.

I feel horrible for them. The dog, the girl.

Oh Loooooseeeee!

Elgin gives a little puff of a laugh. "That's just cruel."

"Seriously."

"Probably bawling her fat little eyes out right now."

"El."

"Sorry."

That night in bed I can't sleep, can't stop thinking about the human Lucy—Hucy, Elgin had christened her. The sound of TVs leaks in from other apartments. Outside, the car horns play on, each one distinct and fleeting, the total set never changing.

She probably isn't sleeping, even this late. She's probably up doing her homework. Ugly girls always do their homework. They take vengeance on the real world by punishing questions on tests, beating them, winning. I'd watched other kids accrete around unspoken and unseen centers. I'd pounded on tests. She's alone now, but she might grow out of it. Some of us do. She needs time, a break. We'd gotten ours, a former fat geek and a smartass immigrant kid.

At some point I start dreaming.

Lucy and her father are shuffling down the narrow hallway below us, boards creaking. They come to their door and find a cardboard box. Lucy's name is scrawled in black marker over discolored splotches. All the cor-

ners are dented. Her father looks at her darkly and she shrinks into her baggy clothes.

He bends and picks it up with a grunt. Inside, he sets it on their flimsy kitchen table covered in sunshine. Table legs wobble in unison. He cuts the tape on top and the flap pops open. I am watching with them. I flinch when they flinch.

Sunlight bounces off the gleaming metal inside, flaring. Lucy lifts our bug out of the box. The bottom half is covered in purple-black sludge that plops onto the table and floor, but they don't seem to notice. They marvel at the complexity under its shell—a maze of wires, gears, antennas, all covered in liquid hydrocarbons. Her hands caress the two sleek black tubes and come away greased and dark.

Around the front there's a collar, a dog collar. Lucy flicks the small bell, wipes a different fluid away from the tag, red-brown. Flowering cursive script. *Lucy*. She looks at her father and his face cracks into a smile. He knows it's a gift from me and Elgin, a gift passed on from a wise but unwitting sweater-vest. Do what you can do, he'd said. In the dream, we did.

Lucy and her father are smiling together in the strong light, hands and arms dark with the raw tar of life, when the call comes from outside. No longer sung, it ricochets off the buildings like a shot. "Lucy!" Desi sounds like a dog owner now, worried, anxious. Outside on the fire escape, cupping his hands against glass smeared with black. The vague form of Desi is trying to see in and he's yelling, "Lucy! Lucy! Lucy!"

Lucy runs down the hall to her bedroom, heavy legs pounding on the wood floors, bug shoved awkwardly under one arm and trailing sludge. She is smiling out of the pink glow of her room as her door swings shut and the sharp vertical lines come together with a thud, again and again.

Elgin is pounding on my door. 4:28 AM glows at me out of the dark.

"Brad, wake up. We lost her."

Our heads are filled with the stiff pain of no sleep. We'd lost contact with Lucy at 2:07:26 AM. Elgin was on call, so the alarm shot to him. After the first ping and zero response, he'd woken me.

"El, play back the last bits again."

Elgin taps quickly. We watch on separate monitors as the stream of data hiccups once, twice, then goes flat.

"Her bats were totally in the green," he says, and shakes his head. "Full-on charged."

"Maybe it's the orbiter."

"Orbiter's five-by. I'm getting a steady stream."

"Send a ping."

"I sent a ping. If it's the flash memory . . ."

"Send another goddamn ping." I am the cliché, the doctor hunched over a bloody mess in ER. I won't give up. I will swear and yell and pound on her chest. I will drop into a chair with my head in my hands and wait two hours to see if I should pound again.

Our reset burst flies into the dark and we wait. Sixty-seven minutes there, sixty-seven back. Light isn't nearly fast enough. We pore back over every system check from the last week and find that the lags formed a growing pattern we hadn't noticed. Maybe it isn't the flash memory. Two hours pass, then fourteen minutes, then fifteen.

"See, Brad? I told you."

"I'm getting the Whites on the link. Should be, what, night over there? Toss me the last five minutes."

We work. Protocol and action, levers against the fear. We follow steps and check off lists. We work and try not to think or dread or hope. A digital blip from the orbiter marks Lucy's exact location 3.1 kilometers off the eastern shore, under eighty-six meters of sludge. It is physically painful to know where she is and still be unable to reach her, to know if she is alive or dead. Dead, that's the word for it. Not dormant, not locked up or broken. Things with names die. It's worse, somehow, that she is below the surface, in the dark. Maybe a wave would toss her up closer to the surface, maybe even heave her onto solid ground at some point. In the end, I don't know what difference that would make.

At 7:30 AM, we hear it coming through the closed windows, bouncy and malicious. *Loooooseeeee!* Only now, Desi sings for us. He mocks our flailing, our thinking we would be allowed, us, to do something this important. He jeers at our child who is unable to fight back, stands over her useless body and throws insults at our crippled baby.

Oh Loooooseeeee!

He sings our failure to the entire block, to the passing traffic, to blue sky and black space. He sings of the joke of our ever trying. The world devours every happy note and opens for more.

Elgin starts yelling back. He shoves the window open and obscenities start flying and I feel a crushing silence take over. This is how we handle the death of our child—him raging, me sinking.

Do what you can do. Schlesher's words ring in my head. They settle into me just as I picture Lucy settling into a thick silence two billion kilometers away, and scrambling helplessly up the fire escape toward the call she knows will turn vicious, and steeling herself against the entry door downstairs like she did every black and horrible morning, bracing for her name.

She is alone but alive. A thick crust of frozen particulate encases her main relay antennas, silencing the data, severing the cord home. She is in standby. She is waiting.

Slightly denser than the sea around her, she begins to sink. The fluid pushes her down with a patience unknown to living things. It takes six years for her to reach the bottom. Once there, she moves with the thirty-year cycles of Titan's great tides, heaving to the inaudible music of gravity and resonance.

Every thirty years, she rolls a few meters to the east along the sea floor. All the while she observes and records—a river of biopolymers in golden bubbles of protective ammonia flowing over the undulating seabed, tree-like colonies of organic matter and water ice erupting from thermal vents in miniature crystalline forests. She sees in numbers, in data. She makes silent discoveries. She is not blind, not dead, only alone.

Her batteries recharge themselves. They last and she lasts. She waits for instructions that never come. She drifts, cycle after cycle, to where the sea meets at right angles with the massive salmon buttes of the eastern shore. Here the force of the tides no longer lifts her, and here she stays, buried with her secrets in a dark, fluid landscape, waiting. ○

Since his first pro sale to *Asimov's* in 2005, Ted Kosmatka has sold stories to *F&SF*, *Cemetery Dance*, *City Slab*, *Ideomancer*, and elsewhere. His tales have been translated into Hebrew and Russian, and have been reprinted in both Gardner Dozois's *Best SF of the Year* and Jonathan Strahan's *Best Science Fiction and Fantasy of the Year*. In his latest tale, Ted explores some of the possible ramifications of illuminating quantum mechanics with . . .

DIVINING LIGHT

Ted Kosmatka

It is impossible that God should ever deceive me, since in all fraud and deceit is to be found a certain imperfection.

—Descartes

I crouched in the rain with a gun.

A wave climbed the pebbly beach toward me, washing over my foot, filling my pants with grit and sand. Around me, the rocks loomed black and big as houses.

I shivered as I came back to myself and for the first time realized my suit jacket was missing. Also my left shoe, brown leather, size twelve. I looked for the shoe, scanning the rocky shoreline, but saw only stone and frothy, sliding water.

I took another swig from the bottle and tried to loosen my tie. Since I had a gun in one hand and a bottle in the other—and since I was unwilling to surrender either—loosening my tie was difficult. I used the gun hand, working the knot with a finger looped through the trigger guard, cold steel brushing my throat. I felt the muzzle under my chin—fingers numb and awkward, curling past the trigger.

It would be so easy.

I wondered if people have died this way—drunk, armed, loosening their ties. I imagined it was common among certain occupations.

Then the tie opened, and I hadn't shot myself. I took a swig from the bottle as reward.

I watched the waves rumble in. This place was nothing like the dunes of Indiana, where Lake Michigan makes love to the shoreline. Here in Gloucester, the water hates the land.

As a child, I'd come to this beach and wondered where all the boulders came from. Did the tides carry them in? Now I knew better. The boulders, of course, were here all along, buried in soft soils. They are left-behind things—they are what remains when the ocean subtracts everything else.

Behind me, near the road, there is a monument—a list of names. Fishermen. Gloucestermen. The ones who did not come back.

This is Gloucester, a place with a history of losing itself to the ocean.

I told myself I'd brought the gun for protection, but sitting here in the dark sand, I no longer believed it. I was beyond fooling myself. It was my father's gun, a .357. It had not been fired for sixteen years, seven months, four days. The math came quickly. Even drunk, the math came quickly.

My sister Mary had called it a good thing, this new place that was also an old place. *A new start*, she'd said. *You can do your work again. You can continue your research.*

Yeah, I'd said. A lie she believed.

You won't call me, will you?

Of course I'll call. A lie she didn't.

I turned my face away from the wind and took another burning swig. I drank until I couldn't remember which hand held the gun and which the bottle. I drank until they were the same.

During the second week, we unpacked the microscopes. Satish used a crowbar while I used a claw hammer. The crates were heavy, wooden, hermetically sealed—shipped in from some now-defunct research laboratory in Pennsylvania.

The sun beat down on the lab's loading dock, and it was nearly as hot today as it was cold the week before.

I swung my arm, and the claw hammer bit into the pale wood. I swung again. It was satisfying work. Satish saw me wipe the perspiration from my forehead, and he smiled, straight white teeth in a straight dark face.

"In India," he said. "This is sweater weather."

Satish slid the crowbar into the gash I made, and pressed. I'd known him for three days, and already I was his friend. Together we committed violence on the crates until they yielded.

The industry was consolidating, and the Pennsylvania lab had been the latest victim. Their equipment had come cheap. Here at Hansen, it was like Christmas for scientists. We opened our boxes. We ogled our new toys. We wondered, vaguely, how we had come to deserve this. For some, like Satish, the answer was complicated and rooted in achievement. Hansen was more than just another Massachusetts think tank, after all, and Satish had beaten out a dozen other scientists to work here. He'd given presentations and written up projects that important people liked. For me it was simpler.

For me this was a second chance given by a friend. A last chance.

We cracked open the final wooden crate, and Satish peered inside. He peeled out layer after layer of foam packing material. It was a big crate, but inside we found only a small assortment of Nalgene volumetric flasks, maybe three pounds' weight. It was somebody's idea of a joke—somebody at the now-defunct lab making a statement of opinion about their now-defunct job.

"The frog is in the well," Satish said, one of his many opaque expressions.

"It certainly is," I said.

There were reasons for moving here. There were reasons not to. They were the same reasons. Both had everything, and nothing, to do with the gun.

The lab gates are the first thing a person sees when driving up on the property. From the gates, you can't see the building at all, which in the real-estate sector surrounding Boston speaks not just of money, but *money*. Everything out here is expensive, elbow room most of all.

The lab is tucked into a stony hillside about an hour upcoast of the city. It is a private, quiet place, shaded by trees. The building itself is beautiful—two stories of reflective glass spread over the approximate dimensions of a football field. What isn't glass is matte black steel. It looks like art. A small, brick-paved turnaround curves up to the main entrance, but the front parking lot there is merely a decorative ornament—a small asphalt pad for visitors and the uninitiated. The driveway continues around the building where the real parking, the parking for the researchers, is in the back.

That first morning, I parked in front and walked inside.

A pretty blonde receptionist smiled at me. "Take a seat."

Two minutes later, James rounded the corner and shook my hand. He walked me back to his office. And then came the offer, like this was just business—like we were just two men in suits. But I could see it in his eyes, that sad way he looked at me, my old friend.

He slid a folded sheet of paper across the desk at me. I unfolded it. Forced myself to make sense of the numbers.

"It's too generous," I said.

"We're getting you cheap at that price."

"No," I said. "You're not."

"Considering your patents and your past work—"

I cut him off. "I can't do that anymore."

He leveled his eyes at me. Two beats. "I'd heard that. I'd hoped it wasn't true."

"If you feel I came here under false pretenses—" I began climbing to my feet.

"No, no." He held his hand up to stop me. "The offer stands. We can carry you for four months." He leaned back in his leather chair. "Probationary project members get four months to produce. We pride ourselves on our independence; so you can choose whatever research you like, but after four months, it's not up to me anymore. I have bosses, too; so you have to have something to show for it. Something publishable, or on its way to it. Do you understand?"

I nodded.

"This can be a new start for you," he said, and I knew then that he'd already talked to Mary. "You did some great work at QSR. I followed your publications; hell, we all did. But considering the circumstances under which you left . . ."

I nodded again. The inevitable moment.

He was silent, looking at me. That was the closest he'd come to mentioning it. "I'm going out on a limb for you," he said. "But you've got to promise me."

I looked away. His office suited him, I decided. Not too large, but bright and comfortable. A Notre Dame engineering diploma graced one wall. Only his desk was pretentious—a huge black monstrosity that you could land aircraft on—but I knew it was inherited. His father's old desk. I'd seen it once when we were still in college a dozen years ago. A lifetime ago.

"Can you promise me?" he said.

I knew what he was talking about. I met his eyes. Silence. And he was quiet for a long time after that, looking at me, waiting for me to say something. Weighing our friendship against the odds this would come back to bite him.

"All right," he said finally. "You start tomorrow."

There are days I don't drink at all. Here is how those days start: I pull the gun from its holster and set it on the desk in my hotel room. The gun is heavy and black. It says *Ruger* along the side in small, raised letters. It tastes like pennies and ashes. I look into the mirror across from the bed and tell myself, *If you drink today, you're going to kill yourself*. I look into my own gray eyes and see that I mean it.

Those are the days I don't drink.

There is a rhythm to working in a research laboratory. Through the glass doors by 7:30, nodding to the other early arrivals, then sit in your office until 8:00, pondering this fundamental truth: even shit coffee—even mud-thick, brackish, walkin'-out-the-pot, shit coffee is still better than no coffee at all.

I like to be the one who makes the first pot in the morning. Swing open the cabinet doors in the coffee room, pop the tin cylinder and take a deep breath, letting the smell of the grounds fill my lungs. It is better than drinking the coffee, that smell.

There are days when I feel everything is an imposition—eating, speaking, walking out of the hotel room door in the morning. Everything is effort. Calling people back is more than I can bear. I exist mostly in my head. It comes and goes, this crushing depression, and I work hard not to let it show, because the truth is that it's not how you feel that matters. It's how you act. It's your behavior. As long as your intelligence is intact, you can make cognitive evaluations of what is appropriate. You can force the day to day. And I want to keep this job; so I do force it. I want to get along. I want to be productive again. I want to make Mary proud of me.

Working at a research lab isn't like a normal job. There are peculiar rhythms, strange hours—special allowances are made for the creatives.

Two Chinese guys are the ringleaders of lunchtime basketball. They

pulled me into a game my first week. "You look like you can play," was what they said.

One is tall, one is short. The tall one was raised in Ohio and has no accent. He is called Point Machine. The short one has no real idea of the rules of basketball, and for this reason is the best defensive player. His fouls leave marks, and that becomes another game—a game within a game—to see how much abuse you can take without calling it. This is the real reason I play. I drive to the hoop and get hacked down. I drive again.

One player, a Norwegian named Umlauf, is 6'8". I marvel at the sheer size of him. He can't run or jump or move at all, really, but his big body clogs up the lane, huge arms swatting down any jump shot made within reach of his personal zone of asphalt real estate. We play four-on-four, or five-on-five, depending on who is free for lunch. At thirty-one, I'm a few years younger than most of them, a few inches taller—except for Umlauf, who is a head taller than everyone. Trash is talked in an assortment of accents.

Some researchers go to restaurants on lunch hour. Others play computer games in their offices. Still others work through lunch—forget to eat for days. Satish is one of those. I play basketball because it feels like punishment.

The atmosphere in the lab is relaxed; you can take naps if you want. There is no outside pressure to work. It is a strictly Darwinian system—you compete for your right to be there. The only pressure is the pressure you put on yourself, because everyone knows that the evaluations come every four months, and you've got to have something to show. The turnover rate for probationary researchers hovers around 25 percent.

Satish works in circuits. He told me about it during my second week when I found him sitting at the SEM. "It is microscopic work," he said.

A scanning electron microscope is a window. Put a sample in the chamber, pump to vacuum, and it's like looking at another world. What had been flat, smooth sample surface now takes on another character, becomes topographically complex. Using the SEM is like looking at satellite photography—you're up in space, looking down at this elaborate landscape, looking down at the Earth, and then you turn the little black dial and zoom toward the surface. Zooming in is like falling. Like you've been dropped from orbit, and the ground is rushing up to meet you, but you're falling faster than you ever could in real life, faster than terminal velocity, falling impossibly fast, impossibly far, and the landscape keeps getting bigger, and you think you're going to hit, but you never do, because everything keeps getting closer and sharper, and you never do hit the ground—like that old riddle where the frog jumps half the distance of a log, then half again, and again, and again, and never reaches the other side, not ever. That's an electron microscope. Falling forever down into the picture. And you never do hit bottom.

I zoomed in to 14,000X once. Like God's eyes focusing. Looking for that ultimate, indivisible truth. I learned this: there is no bottom to see.

Satish and I both had offices on the second floor.

Satish was short and thin. His skin was a deep, rich brown. He had an almost boyish face, but the first hints of gray salted his mustache. His features were balanced in such a way that he could have been the fit and healthy

son of any number of nations: Mexico, or Libya, or Greece, or Sicily—until he opened his mouth. When he opened his mouth and spoke, all those possible identities vanished, and he was suddenly Indian, solidly Indian, completely, like a magic trick; you could not imagine him being anything else.

The first time I met Satish, he clamped both hands over mine, shook, then clapped me on the shoulder and said, "How are you doing, my friend? Welcome to research." He smiled so wide it was impossible not to like him.

It was Satish who explained that you never wore gloves when working with liquid nitrogen. "Make a point of it," Satish said. "Because the gloves will get you burned."

I watched him work. He filled the SEM's reservoir—icy smoke spilling out over the lip, cascading down to the tile floor.

Liquid nitrogen doesn't have the same surface tension as water; spill a few drops across your hand and they'll tend to bounce off harmlessly and run down your skin without truly wetting you—like little balls of mercury. The drops will evaporate in moments, sizzling, steaming, then gone. But if you're wearing gloves when you fill the reservoir, the nitrogen could spill down inside and be trapped against your skin. "And if that happens," Satish said while he poured, "it will hurt you bad."

Satish was the first to ask me my area of research.

"I'm not sure," I told him.

"How can you not be sure?"

I shrugged. "I'm just not."

"You are here. It must be something."

"I'm still working on it."

He stared at me, taking this in, and I saw his eyes change—his understanding of me shifting, like the first time I heard him speak. And just like that, I'd become something different to him.

"Ah," he said. "I know who you are now. You are the one from Stanford."

"That was eight years ago."

"You wrote that famous paper on de-coherence. You are the one who had the breakdown."

Satish was blunt, apparently.

"I wouldn't call it a breakdown."

He nodded, perhaps accepting this; perhaps not. "So you still are working in quantum theory?"

"No, I stopped."

"Why stop?"

"Quantum mechanics starts to affect your worldview after a while."

"What do you mean?" he asked.

"The more research I did, the less I believed."

"In quantum mechanics?"

"No. In the world."

There are days when I don't drink at all. On those days, I pick up my father's .357 and look in the mirror. I convince myself what it will cost me, today, if I take the first sip. It will cost me what it cost him.

But there are also days I *do* drink. Those are the days I wake up sick. I walk into the bathroom and puke into the toilet, needing a drink so bad

my hands are shaking. I look in the bathroom mirror and splash water in my face. I say nothing to myself. There is nothing I would believe.

It is vodka in the morning. Vodka because vodka has no smell. A sip to calm the shakes. A sip to get me moving. If Satish knows, he says nothing.

Satish studied circuits. He bred them, in little ones and zeroes, in a Thompson's Field Programmable Gate Array. The array's internal logic could be changed, and he allowed selective pressure to dictate chip design. Genetic algorithms manipulated the best codes for the task. "Nothing is ideal," he said. "There's lots of modeling."

I didn't have the slightest idea how it all worked.

Satish was a genius who had been a farmer in India until he came to America at the age of twenty-eight. He earned an electrical engineering degree from MIT. After that, Harvard, and patents, and job offers. "I am just a simple farmer," he liked to say. "I like to challenge the dirt."

Satish had endless expressions. When relaxed, he let himself lapse into broken English. Sometimes, after spending the morning with him, I'd fall into the pattern of his speech, talking his broken English back at him, an efficient pidgin that I came to respect for its streamlined efficiency and ability to convey nuance.

"I went to dentist yesterday," Satish told me. "He says I have good teeth. I tell him 'Forty-two years old, and it is my first time at dentist.' And he could not believe."

"You've never been to the dentist?" I said.

"No, never. Until I am in twelfth grade in my village back home, I did not know there was special doctor for teeth. I never went because I had no need. The dentist says I have good teeth, no cavities, but I have stain on my back molars on the left side where I chew tobacco."

"I didn't know you chewed."

"I am ashamed. None of my brothers chew tobacco. Out of my family, I am the only one. I try to stop." Satish spread his hands in exasperation. "But I cannot. I told my wife I stopped two months ago, but I started again, and I have not told her." His eyes grew sad. "I am a bad person."

Satish stared at me. "You are laughing," he said. "Why are you laughing?"

Hansen was a gravity well in the tech industry—a constantly expanding force of nature, buying out other labs, buying equipment, absorbing the competition.

Hansen labs only hired the best, without regard to national origin. It was the kind of place where you'd walk into the coffee room and find a Nigerian speaking German to an Iranian. Speaking German because they both spoke it better than English, the other language they had in common. Most of the engineers were Asian, though. It wasn't because the best engineers were Asian—well, it wasn't *only* because the best engineers were Asian. There were also simply more of them. America graduated four thousand engineers in 2008. China graduated three hundred thousand. And Hansen Labs was always looking for talent.

The Boston lab was just one of Hansen's locations, but we had the largest storage facility, which meant that much of the surplus lab equip-

ment ended up shipped to us. We opened boxes. We sorted through supplies. If we needed anything for our research, we signed for it, and it was ours. It was the opposite of academia, where every piece of equipment had to be expensed and justified and begged for.

Most mornings I spent with Satish. I helped him with his gate arrays. He talked of his children while he worked. Lunch I spent on basketball. Sometimes after basketball, I'd drop by Point Machine's lab to see what he was up to. He worked with organics, searching for chemical alternatives that wouldn't cause birth defects in amphibians. He tested water samples for cadmium, mercury, arsenic. Point Machine was a kind of shaman. He studied the gene expression patterns of amphioxus; he read the future in deformities.

"Unless something is done," he said. "A generation from now, most amphibians will be extinct." He had aquariums filled with frogs—frogs with too many legs, with tails, with no arms. Monsters.

Next to his lab was the office of a woman named Joy. Sometimes Joy would hear us talking and stop by, hand sliding along the wall—tall, and beautiful, and blind. Did acoustical research of some kind. She had long hair and high cheekbones—eyes so clear, and blue, and perfect that I didn't realize at first.

"It's okay," she said. "I get that a lot." She never wore dark glasses, never used a white cane. "Detached retinas," she explained. "I was three."

In the afternoons, I tried to work.

Alone in my office, I stared at the marker board. The great white expanse of it. I picked up the marker, closed my eyes, wrote from memory.

When I looked at what I'd written, I threw the marker across the room.

James came by later that night. He stood in the doorway, cup of coffee in his hand. He saw the papers scattered across the floor. "It's good to see you working on something," he said.

"It's not work."

"It'll come," he said.

"No, I don't think it will."

"It just takes time."

"Time is what I'm wasting here. Your time. This lab's time." Honesty welled up from somewhere deep. "I shouldn't be here."

"It's fine, Eric," he said. "We have researchers on staff who don't have a third of your citations. You belong here."

"It's not like before. I'm not like before."

James looked at me. That sad look back again. His voice was soft when he spoke. "R&D is a tax write-off. At least finish out your contract. That gives you another two months. After that, we can write you up a letter of recommendation."

That night in my hotel room, I stared at the phone, sipped the vodka. I imagined calling Mary, dialing the number. My sister, so like me, yet not like me. I imagined her voice on the other end.

Hello? Hello?

This numbness inside of me, a strange heaviness of things I could have said, not to worry, things are fine; but instead I say nothing, letting the

phone slide away, and hours later find myself at the railing outside, coming off another blackout, soaked to the skin, watching the rain. Thunder advances from the east, from across the water, and I stand in the dark, waiting for life to be good again.

There is this: the feeling that my mind could not contain my perspective. I see myself outside myself, an angular shape cast in sodium lights—eyes gray like storm clouds, gray like gunmetal. Dreaming and waking are indistinguishable. The gravity of memory pulls me down, because once you've learned something, you can't unlearn it. Darwin once said that the serious study of math endows you with an extra sense, but what do you do when that sense contradicts your other senses?

My arm flexes and the vodka bottle flies end over end into the darkness—the glimmer of it, the shatter of it, glass and asphalt and shards of rain. There is nothing else until there is nothing else.

The lab.

Satish said, "Yesterday in my car I was talking to my daughter, five years old, and she says, 'Daddy, please don't talk.' I asked her why, and she said, 'Because I am praying. I need you to be quiet.' So I ask her what she is praying about, and she said, 'My friend borrowed my glitter ChapStick and I am praying she remembers to bring it back.'"

Satish was trying not to smile. We were in his office, eating lunch across his desk.

He continued. "I told her, well, maybe she is like me and she forgets. But my daughter says, 'No, it has been more than one week now.'"

This amused Satish greatly—the talk of ChapStick, and the prayers of children. We finished our lunches.

"You eat rice every day," I observed.

"I like rice," he said.

"But every day?"

"You insult me, my friend. I am a simple man trying to save for my daughter's college." Satish spread his hands in mock outrage. "Do you think I am born with golden spoon?"

In the fourth week, I told him I wasn't going to be hired after my probationary period.

"How do you know?"

"I just know."

His face grew serious. "You are certain?"

"Yeah."

"In that case, do not worry about it." He clapped me on the shoulder. "Sometimes the boat just gets sink, my friend."

I thought about this for a moment. "Did you just tell me that you win some and you lose some?"

Satish considered this. "Yes," he said. "That is correct, except I did not mention the win part."

During my fifth week at the lab, I found the box from Docent. It started as an email from Bob, the shipping guy, saying there were some crates I might be interested in. Crates labeled, "Physics," sitting in the loading dock.

I went down to receiving and looked at the boxes. Got out the crowbar and opened them.

Three of the boxes were of no interest to me; they held only weights, scales, and glassware. But the fourth box was different. I stared into the fourth box for a long time.

I closed the box again and hammered the lid down with the edge of the crowbar. I went to Bob's office and tracked down the shipping information. A company called Ingram had been bought by Docent a few years ago—and now Docent had been bought by Hansen. The box had been in storage the whole time.

I had the box taken to my office. Later that day, I signed for lab space, Room 271.

I was drawing on my marker board when Satish walked into my office. "What is that?" he said, gesturing to what I'd written.

"It is my project."

"You have a project now?"

"Yes."

"That is good." He smiled and shook my hand. "Congratulations, my friend. How did this wonderful thing happen?"

"It's not going to change anything. Just busy work to give me something to do."

"What is it?"

"You ever hear of the Feynman double-slit?" I said.

"Physics? That is not my area, but I have heard of Young's double-slit."

"It's the same thing, almost; only instead of light, they used a stream of electrons." I patted the box on the table. "And a detector. The detector is key. The detector makes all the difference."

Satish looked at the box. "The detector is in there?"

"Yeah, I found it in a crate today, along with a thermionic gun."

"A gun?"

"A thermionic gun. An electron gun. Obviously part of a replication trial."

"You are going to use this gun?"

I nodded. "Feynman once said, 'Any other situation in quantum mechanics, it turns out, can be explained by saying, "You remember the case of the experiment with two holes? It's the same thing."'"

"Why are you going to do this project?"

"I want to see what Feynman saw."

Autumn comes quickly to the East Coast. It is a different animal out here, where the trees take on every color of the spectrum, and the wind has teeth. As a boy, before the moves and the special schools, I'd spent an autumn evening camped out in the woods behind my grandparents' house. Lying on my back, I'd stare up at the leaves as they drifted past my field of vision.

It was the smell that brought it back so strongly—the smell of fall, as I walked to the parking lot. Joy stood near the roadway, waiting for her cab.

The wind gusted, making the trees dance. She turned her collar against the wind, oblivious to the autumn beauty around her. For a moment, I felt pity for that. To live in New England and not see the leaves.

I climbed into my rental. I idled. No cab passed through the gates. No cab followed the winding drive. I was about to pull away, but at the last second spun the wheel and pulled up to the turnaround.

"Is there a problem with your ride?" I asked her.

"I'm not sure. I think there might be."

"Do you need a lift home?"

"I'll be okay." She paused. "You don't mind?"

"It's fine, seriously."

She climbed in and shut the door. "Thank you," she said. "It's a bit of a drive."

"I wasn't doing much anyway."

"Left at the gate," she said.

She guided me by stops. She didn't know the street names, but she counted the intersections, guiding me to the highway, blind leading the blind. The miles rolled by.

Boston. A city that hasn't forgotten itself. A city outside of time. Crumbling cobblestones and modern concrete. Road names that existed before the Redcoats invaded. It is easy to lose yourself, to imagine yourself lost, while winding through the hilly streets.

Outside the city proper, there is stone everywhere, and trees—soft pine and colorful deciduous. I saw a map in my head, Cape Cod jutting into the Atlantic. The cape is a curl of land positioned so perfectly to protect Boston that it seems a thing designed. If not by man, then by God. God wanted a city where Boston sits.

The houses, I know, are expensive beyond all reason. It is a place that defies farming. Scratch the earth, and a rock will leap out and hit you. People build stone walls around their properties so they'll have someplace to put the stones.

At her apartment, I pulled to a stop. Walked her to her door, like this was a date. Standing next to her, she was almost as tall as me—maybe 5'11", too thin, and we were at the door, her empty blue eyes focused on something far away until she looked at me, *looked*, and I could swear for a moment that she saw me.

Then her eyes glided on past my shoulder, focused on some dim horizon again.

"I'm renting now," she said. "Once my probationary period is over, I'll probably buy a condo closer to work."

"I didn't realize you were new to Hansen, too."

"I actually hired in the week after you. I'm hoping to stay on."

"Then I'm sure you will."

"Perhaps," she said. "At least my research is cheap. It is only me and my ears. Can I entice you in for coffee?"

"I should be going, but another time perhaps."

"I understand." She extended her hand. "Another time then. Thank you for the ride."

I turned to go, but her voice stopped me. "James said you were brilliant."

I turned. "He told you that?"

"Not me. I talk with his secretary, and James has spoken about you a lot, apparently—your days in college. But I have a question before you go. Something I was wondering."

"Okay."

She brought her hand up and touched my cheek. "Why are the brilliant ones always so screwed-up?"

I said nothing, looking hard into those eyes. The silence between us attenuated, became so thin it was see-through.

"You need to be careful," she said. "The alcohol. I can smell it on you some mornings. If I can smell it, so can others."

"I'll be fine."

"No. Somehow I don't think you will."

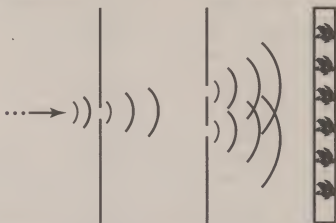
The lab.

Satish stood in front of the diagram I'd drawn on my whiteboard.

I watched him studying it. "What is this?" he asked.

"The wave-particle duality of light."

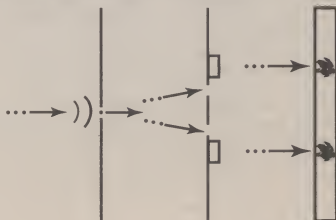
"And these lines?"



"This is the wave part," I said, pointing at the diagram. "Fire a photon stream through two slits, and the waves create a pattern on the phosphorescent screen behind the slits. The frequencies of the waves cancel each other out at certain intervals, creating an interference pattern. Do you see?"

"Yes, I think so."

"But if you put a detector at the two slits . . ." I began drawing another picture under the first. "Then it changes everything. When the detectors are in place, light stops behaving like a wave and starts acting like distinct particles, like a stream of little bullets."



I continued. "So instead of an interference pattern, you get two distinct clusters of phosphorescence where those tiny bullets hit the screen behind the slits."

"Yes, I remember now," Satish said. "This is very familiar. I believe there was a chapter on this in grad school."

"In grad school, I *taught* this. And I watched the students' faces. The ones who understood what it meant—who truly understood—always looked troubled by it. I could see it in their expressions, the pain of believing something which can't be true."

"This is a famous experiment. You are planning to replicate?"

"Yeah."

"Why? It has already been replicated many times; no journal will publish."

"I know. I've read scientific papers on the phenomenon; I've taken tests on it, and given tests on it; I understand it mathematically—hell, most of my earlier research is based on the assumptions that came out of this experiment. But I've never actually *seen* it with my eyes. That's why I want to do it. To finally see it."

"It is science," Satish shrugged. "You don't need to see it."

"I do," I said. "Need to. Just once."

The next few weeks passed in a blur. Satish helped me with my project, and I helped him with his. We worked mornings in his lab. Evenings we spent in Room 271, setting up. The phosphorescent plate was a problem—then the alignment of the thermionic gun. In a way, it felt like we were partners, almost, Satish and I. And it was a good feeling. After working so long by myself, it was good to be able to talk to someone.

We traded stories to pass the time. Satish talked of his problems. They were the problems good men sometimes have when they've lived good lives. He talked about helping his daughter with her homework, and worrying about paying for her college. He talked of his family *Backhome*—saying it fast that way, *Backhome*, so you heard the proper noun; and he talked of the fields, and the bugs, and the monsoon, and the ruined crops. "It is going to be a bad year for sugar cane," he told me, as if we were farmers instead of researchers. He talked about his mother's health and advancing years. He talked of his brothers, and his sisters, and his nieces and nephews; and I came to understand the weight of responsibility he felt.

Bending over the gate arrays, soldering tool in hand, he told me, "I talk too much, you must be sick of my voice."

"Not at all."

"You have been a big help me with my work. How can I ever repay you, my friend?"

"Money is fine," I told him. "I prefer large bills."

I wanted to tell him of my life. I wanted to tell him of my work at QSR, and that some things you learn, you wish you could unlearn. I wanted to tell him that memory has gravity, and madness a color; that all guns have names, and it is the same name. I wanted to tell him I understood about his tobacco; that I'd been married once, and it hadn't worked out; that I used to talk softly to my father's grave; that it was a long time since I'd really been okay.

Instead of telling him these things, I talked about the experiment. That I could do. Always could do.

"It started a half-century ago as a thought experiment," I told him. "To prove the incompleteness of quantum mechanics. Physicists felt quantum mechanics couldn't be the whole story, because the math takes too many liberties with reality. But there was still that troublesome contradiction left to be reconciled: the photoelectric effect required light to be a particle; Young's results showed it to be a wave. Only later, of course, when the technology finally caught up with the theory, it turned out the experimental results followed the math. The math says you can either know the position of an electron, or the momentum, but never both. The math, it turned out, wasn't metaphor at all. The math was dead serious. The math wasn't screwing around."

Satish nodded like he understood.

Later, working on his gate arrays, he traded his story for mine.

"There once was a guru who brought four princes into the forest," he told me. "They were hunting birds."

"Birds," I said.

"Yes, and up in the trees, they see one, a beautiful bird with bright feathers. The first prince said, 'I will shoot the bird,' and he pulled back on his arrow and shot into the trees. But the arrow missed. Then the second prince tried to shoot, and he, too, missed. Then the third prince. Finally the fourth prince shot high into the trees, and this time the arrow struck and the beautiful bird fell dead. The guru looked at the first three princes and said, 'Where were you aiming?'

"At the bird."

"At the bird."

"At the bird."

"The guru looked at the fourth prince, 'And you?'

"At the bird's eye."

Once the equipment was set up, the alignment was the last hurdle to be cleared. The electron gun had to be aimed so the electron was just as likely to go through either slit. The equipment filled most of the room—an assortment of electronics and screens and wires.

In the mornings, in the hotel room, I talked to the mirror, made promises to gunmetal eyes. And by some miracle did not drink.

One day became two. Two became three. Three became five. Then I hadn't had a drink in a week.

At the lab, the work continued. When the last piece of equipment was positioned, I stood back and surveyed the whole setup, heart beating in my chest, standing at the edge of some great universal truth. I was about to be witness to something few people in the history of the world had ever seen.

When the first satellite was launched toward deep space in 1977, it carried a golden record of coded messages. The record held diagrams of chemical structures, and mathematical formulas. It carried the image of a fetus, the calibration of a circle, and a single page from Newton's *System of the World*. It carried the units of our mathematical system, because mathematics, we're told, is the universal language. I've always felt that

golden record should have carried a diagram of this experiment, the Feynman double-slit.

Because this experiment is more fundamental than math. It is what lives under the math. It tells of reality itself.

Richard Feynman said this about the slit experiment: "It has in it the heart of quantum mechanics. In truth, it contains only mystery."

Room 271 held two chairs, a marker board, a long lab bench, and several large tables. I'd hung dark canvas over the windows to block out the light. The setup sprawled across the length of the room.

Slits had been cut into sheets of steel that served to divide the areas of the setup. The phosphorescent screen was loaded into a small rectangular box behind the second set of slits.

James came by a little after 5:00, just before going home for the evening.

"They told me you signed up for lab space," he said.

"Yeah."

He stepped inside the room. "What is this?" he said, gesturing to the equipment.

"Just old equipment from Docent. No one was using it, so I thought I'd see if I could get it to work."

"What are you planning exactly?"

"Replicating results, nothing new. The Feynman double-slit."

He was quiet for a moment. "It's good to see you working on something, but isn't that a little dated?"

"Good science is never dated."

"But what are you expecting to prove?"

"Nothing," I said. "Nothing at all."

The day we ran the experiment, the weather was freezing. The wind gusted in from the ocean, and the East Coast huddled under a cold front. I got to work early and left a note on Satish's desk.

Meet me in my lab at 9:00.

—Eric

I did not explain it to Satish. I did not explain further.

Satish walked through the door of room 271 a little before 9:00, and I gestured toward the button. "Would you like to do the honors?"

We stood motionless in the near-darkness of the lab. Satish studied the apparatus spread out before him. "Never trust engineer who doesn't walk his own bridge."

I smiled. "Okay then." I hit the button. The machine hummed.

I let it run for a few minutes before walking over to check the screen. I opened the top and looked inside. And then I saw it, what I'd been hoping to see. The experiment had produced a distinctive banded pattern, an interference pattern on the screen. Just like Young, just like the Copenhagen interpretation said it would.

Satish looked over my shoulder. The machine continued to hum, deepening the pattern as we watched.

"Would you like to see a magic trick?" I asked.

He nodded solemnly.

"Light is a wave," I told him.

I reached for the detector and hit the "on" switch—and just like that, the interference pattern disappeared.

"Unless someone is watching."

The Copenhagen interpretation posits this: Observation is a requirement of reality. Nothing exists until it is observed. Until then there are only probability waves. Only possibility.

For purposes of the experiment, these waves describe the probability of a particle being found at any given location between the electron gun and the screen. Until the particle is detected by some consciousness at a specific point along the wave, it effectively takes every path through space-time. Therefore, until a particle is observed passing through one slit, it could theoretically be passing through either—and thus will actually pass through both in the form of probability waves. These waves interfere with each other in a predictable way and thereby produce a visible interference pattern on the screen behind the slits. But if a particle is detected by an observer at either of the two slits, it can't then be passing through both; and if it can't pass through both, it can't produce an interference pattern.

This would seem self-contradictory, except for one thing. Except that the interference pattern disappears if someone is watching.

We ran the experiment again and again. Satish checked the detector results, carefully noting which slit the electrons passed through. With the detectors on, roughly half the electrons passed through each slit, and no interference pattern formed. We turned the detectors off again—and again, instantly, the interference pattern emerged on the screen.

"How does the system know?" Satish asked.

"How does it know what?"

"That the detectors are on. How does it know the electron's position has been recorded?"

"Ah, the big question."

"Are the detectors putting out some kind of electromagnetic interference?"

I shook my head. "You haven't seen the really weird stuff yet."

"What do you mean?"

"The electrons aren't really responding to the detectors at all. They're responding to the fact that you'll eventually read the detectors' results."

Satish looked at me, blank-faced.

"Turn the detectors back on," I said.

Satish hit the button. The detectors hummed softly. We let the experiment run.

"It is just like before," I told him. "The detectors are on, so the electrons should be acting as particles, not waves; and without waves, there's no interference pattern, right?"

Satish nodded.

"Okay, turn it off."

The machine cycled down to silence.

"And now the magic test," I said. "This is the one. This is the one I wanted to see."

I hit the "clear" button on the detector, erasing the results.

"The experiment was the same as before," I said. "The detectors were on both times. The only difference was that I erased the results without looking at them. Now check the screen."

Satish opened the box and pulled the screen out.

And then I saw it. On his face. The pain of believing something which can't be true.

"An interference pattern," he said. "How could that be?"

"It's called retrocausality. By erasing the results after the experiment was run, I caused the particle pattern to never have occurred in the first place."

Satish was silent for five full seconds. "Is such a thing possible?"

"Of course not, but there it is. Unless a conscious observer makes an observation of the detector results, the detector itself will remain part of the larger indeterminate system. The detectors don't cause wave function collapse; conscious observation does. Consciousness is like this giant spotlight collapsing reality wherever it shines—and what isn't observed remains probability. And it's not just photons or electrons. It is everything. All matter. It is a flaw in reality. A testable, repeatable, flaw in reality."

Satish said, "So this is what you wanted to see?"

"Yeah."

"Is it different for you now that you've actually seen it?"

I considered this for a moment, exploring my own mind. "Yes, it is different," I said. "It is much worse."

We ran the slit experiment again and again. The results never changed. They matched perfectly the results that Feynman had documented decades earlier. Over the next two days, Satish hooked the detectors up to a printer. We ran the tests, and I hit print. We listened as the printer buzzed and chirped, printing out the results.

Satish pored over the data sheets as if to make sense of them by sheer force of will. I stared over his shoulder, a voice in his ear. "It's like an unexplored law of nature," I said. "Quantum physics as a form of statistical approximation—a solution to the storage problem of reality. Matter behaves like a frequency domain. Why resolve the data fields nobody is looking at?"

Satish put the sheets down and rubbed his eyes.

"There are schools of mathematical thought which assert that a deeper, implicate order is enfolded just below the surface of our lives."

"We have a name for this, too," Satish said. He smiled. "We call it Brahman. We've known about it for five thousand years."

"I want to try something," I said.

We ran the test again. I printed up the results, being careful not to look at them. We turned off the equipment.

I folded both pages in half and slid them into manila envelopes. I gave Satish the envelope with the screen results. I kept the detector results. "I haven't looked at the detector results yet," I told him. "So right now the wavefunction is still a superposition of states. Even though the results

are printed, they're still un-observed and so still part of the indeterminate system. Do you understand?"

"Yes."

"Go in the next room. I'm going to open my envelope in exactly twenty seconds. In exactly thirty seconds, I want you to open yours."

Satish walked out. And here it was: the place logic bleeds. I fought an irrational burst of fear. I lit the nearby Bunsen burner and held my envelope over the open flame. The smell of burning paper. Black ash. A minute later Satish was back, his envelope open.

"You didn't look," he said. He held out his sheet of paper. "As soon as I opened it, I knew you didn't look."

"I lied," I said, taking the paper from him. "And you caught me. We made the world's first quantum lie detector—a divination tool made of light." I looked at the paper. The interference pattern lay in dark bands across the white surface. "Some mathematicians say there is either no such thing as free will, or the world is a simulation. Which do you think is true?"

"Those are our choices?"

I crushed the paper into a ball. Something slid away inside of me; something snapped, and I opened my mouth to speak but what came out was different from what I intended.

I told Satish about the breakdown, and the drinking, and the hospital. I told him about the eyes in the mirror, and what I said to myself in the morning.

I told him about the smooth, steel erase button I put against my head—a single curl of an index finger to pay for everything.

Satish nodded while he listened, the smile wiped clean from his face. When I finished speaking, Satish put his hand on my shoulder and looked me in the eye. "So then you are crazy after all, my friend."

"It's been thirteen days now," I told him. "Thirteen days sober."

"Is that good?"

"No, but it's longer than I've gone in two years."

We ran the experiment. We printed the results.

If we looked at the detector results, the screen showed the particle pattern. If we didn't, it showed an interference pattern.

We worked through most of the night. Near morning, sitting in the semi-darkness of the lab, Satish spoke. "There once was a frog who lived in a well," he said.

I watched his face as he told the story.

Satish continued. "One day a farmer lowered a bucket into the well, and the frog was pulled up to the surface. The frog blinked in the bright sun, seeing it for the first time. 'Who are you?' the frog asked the farmer.

"The farmer was amazed. He said, 'I am the owner of this farm.'"

"You call your world 'farm'?" the frog said.

"No, this is not a different world," the farmer said. "This is the same world."

"The frog laughed at the farmer. He said, 'I have swum to every corner of my world. North, south, east, west. I am telling you, I am sure this is a different world.'"

I looked at Satish and said nothing.

"You and I," Satish said. "We are still in the well." He closed his eyes. "Can I ask you a question?"

"Go ahead."

"You do not want to drink?"

"No."

"I am curious, what you said with the gun, that you'd shoot yourself if you drank . . ."

"Yeah."

"You did not drink on those days you said that?"

"No."

Satish paused as if considering his words carefully. "Then why did you not just say that every day?"

"That is simple," I said. "Because then I'd be dead now."

Later, after Satish had gone home, I ran the experiment one final time. I put the results in two envelopes without looking at them. On the first envelope, I wrote the words "detector results." On the second, I wrote "screen results."

I drove to the hotel. I took off my clothes. I stood naked in front of the mirror.

I put the enveloped marked "detector" up to my forehead. "I will never look at this," I said. "Not ever, unless I start drinking again." I stared in the mirror. I stared at my own gray eyes and saw that I meant it.

I glanced down at the other envelope. The one with the screen results. My hands shook.

I laid the envelope on the desk, stared at it. Will I drink again? The question had a pressure, a turgidity. Those envelopes knew the answer.

One day, I would either open the detector results, or I wouldn't.

Inside the other envelope there was either an interference pattern, or there wasn't. A yes or a no. The answer was in there. It was already in there.

I waited in Satish's office until he arrived in the morning. He put his briefcase on his desk. He looked at me, at the clock, then back at me.

"What are you doing?" he asked.

"Waiting for you."

"How long have you been here?"

"Since 4:30."

He glanced around the room. I leaned back in his chair, fingers laced behind my head.

Satish just watched me. Satish was bright. He waited.

"Can you rig the detector to an indicator light?" I asked him.

"How do you mean?"

"Can you set it up so that the light goes off when the detector picks up an electron at the slit?"

"It shouldn't be hard. Why?"

"I want to define, exactly, the indeterminate system."

Point Machine watched the test. He studied the interference pattern.

"You're looking at one-half the wave particle duality of light," I said.

"What's the other half look like?"

I turned the detectors on. The banded pattern diverged into two distinct clumps on the screen.

"This."

"Oh," Point Machine said.

Standing in Point Machine's lab. Frogs swimming.

"They're aware of light, right?" I asked.

"They do have eyes."

"But, I mean, they're aware of it?"

"Yeah, they respond to visual stimuli. They're hunters. They have to see to hunt."

"But, I mean, aware?"

"What did you do before here?"

"Quantum research."

"I know that," Point Machine said. "But what did you do?"

I tried to shrug him off. "There were a range of projects. Solid state photonic devices, *Fourier transforms*, liquid NMR."

"*Fourier transforms*?"

"They're complex equations that can be used to translate visual patterns into the language of waves."

Point Machine looked at me, dark eyes tightening. He said again, very slowly, enunciating each word, "What did you do, *exactly*?"

"Computers," I said. "We were trying to build a computer. Quantum information processing extending up to twelve qubits. We used the *Fourier transforms* to convert information into waves and back again."

"Did it work?"

"Kind of. We reached a twelve-coherence state and decoded it using nuclear magnetic resonance."

"Why only kind of? So then it *didn't* work?"

"No, it worked, it definitely worked. Especially when it was turned off." I looked at him. "Kind of."

It took Satish two days to rig up the light.

Point Machine brought the frogs in on a Saturday. We separated the healthy from the sick, the healthy from the monsters. "What is wrong with them?" I asked.

"The more complex a system, the more ways it can go wrong."

Joy was next door, working in her lab. She heard our voices and stepped into the hall.

"You work weekends?" Satish asked her.

"It's quieter," Joy said. "I do my more sensitive tests when there's nobody here. What about you? So you're all partners now?"

"Eric has the big hands on this project," Satish said. "My hands are small."

"What are you working on?" she said. She followed Satish into the lab.

He shot me a look, and I nodded.

So Satish explained it the way only Satish could.

"Oh," she said. She blinked. She stayed.

We used Point Machine as a control. "We're going to do this in real-time," I told him. "No record at the detectors, just the indicator light. When I tell you, stand there and watch for the light. If the light comes on, it means the detectors picked up the electron. Understand?"

"Yeah, I get it," Point Machine said.

Satish hit the button. I watched the screen, interference pattern materializing before my eyes—a now-familiar pattern of light and dark.

"Okay," I told Point Machine. "Now look in the box. Tell me if you see the light."

Point Machine looked in the box. Before he even spoke, the interference pattern disappeared. "Yeah," he said. "I see the light."

I smiled. Felt that edge between known and unknown. Caressed it.

I nodded at Satish, and he hit the switch to kill the gun. I turned to Point Machine. "You collapsed the probability wave by observing the light, so we've established proof of principle." I looked at the three of them. "Now let's find out if all observers were created equal."

Point Machine put a frog in the box.

And here it was, the stepping-off point. A view into the implicate—a place where objective and subjective reality remained undefined. I nodded to Satish. "Fire the gun."

He hit the switch and the machine hummed. I watched the screen. I closed my eyes, felt my heart beating in my chest. Inside the box, I knew a light had come on for one of the two detectors; I knew the frog had seen it. But when I opened my eyes, the interference pattern still showed on the screen. The frog hadn't changed it at all.

"Again," I told Satish.

Satish fired the gun again. Again. Again.

Point Machine looked at me. "Well?"

"There's still an interference pattern. The probability wave didn't collapse."

"What does that mean?" Joy asked.

"It means we try a different frog."

We tried six. None changed the result.

"They're part of the indeterminate system," Satish said.

I was watching the screen closely, and the interference pattern vanished. I was about to shout, but when I looked up, I saw Point Machine peeking into the box.

"You looked," I said.

"I was just making sure the light worked."

"I could tell."

We tried every frog in his lab. Then we tried the salamanders.

"Maybe it's just amphibians," he said.

"Yeah, maybe."

"How is it that we affect the system, but frogs and salamanders can't?"

"Maybe it's our eyes," Point Machine said. "It has to be the eyes—quantum effects in the retinal rod-rhopsin molecules. Our optic nerves only present measured information to the brain."

"Why would that matter?"

"Can I try?" Joy interrupted.

I nodded. We ran the experiment again, this time with Joy's empty eyes pointed at the box. Again, nothing.

The next morning, Point Machine met Satish and me in the parking lot before work. We climbed into my car and drove to the mall.

We went to a pet store.

I bought three mice, a canary, a turtle, and a squish-faced Boston terrier puppy. The sales clerk stared at us.

"You pet lovers, huh?" He looked suspiciously at Satish and Point Machine.

"Oh, yes," I said. "Pets."

The drive back was quiet, punctuated only by the occasional whining of the puppy.

Point Machine broke the silence. "Perhaps it takes a more complex nervous system."

"Why would that matter?" Satish said. "Life is life. Real is real."

I gripped the steering wheel. "What's the difference between mind and brain?"

"Semantics," said Point Machine. "Different names for the same idea."

Satish regarded us. "Brain is hardware," he said. "Mind is software."

The Massachusetts landscape whipped past the car's windows, a wall of ruined hillside on our right—huge, dark stone like the bones of the earth. A compound fracture of the land. We drove the rest of the way in silence.

Back at the lab, we started with the turtle. Then the mice, then the canary, which escaped, and flew to sit atop a filing cabinet. None of them collapsed the wave.

The Boston terrier looked at us, google-eyed.

"Are its eyes supposed to look like that?" Satish said. "In different directions?"

I put the puppy in the box. "It's the breed, I think. But all it has to do is sense the light. Either eye will do." I looked down at man's best friend, our companion through the millennia—and I harbored a secret hope. This one, I told myself. This species, certainly, of all of them. Because who hasn't looked into the eyes of a dog and not sensed something looking back?

The puppy whined in the box. Satish ran the experiment. I watched the screen.

Nothing. There was no change at all.

That night I drove to Joy's. She answered the door. Waited for me to speak.

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"You mentioned coffee?"

She smiled, and there was another moment when I felt sure she saw me.

Hours later, in the darkness, I told her it was time for me to go. She ran a hand along my bare spine.

"There is no such thing as time," she said. "Only now. And now." She put her lips on my skin. "And now."

The next day, I had James come by the lab.

"You've made a finding?" he asked.

"We have."

James watched us run the experiment. He looked in the box. He collapsed the wavefunction himself.

Then we put the puppy in the box and ran the experiment again. We showed him the interference pattern.

"Why didn't it work?" he asked.

"We don't know."

"But what's different?"

"Only one thing. The observer."

"I don't think I understand."

"So far, none of the animals we've tested have been able to alter the quantum system."

He brought his hand to his chin. His brow furrowed. He was silent for a long time, looking at the setup. "Holy shit," he said finally.

"Yeah," Point Machine said.

I stepped forward. "We want to do more tests. Work our way up through every phylum, class, and order—primates being of particular interest, because of their evolutionary connection to us."

His eyes went far away. "As much as you want," he said. "As much funding as you want."

It took ten days to arrange. We worked in conjunction with the Boston Zoo.

Transporting large numbers of animals can be a logistical nightmare, so it was decided that it would be easier to bring the lab to the zoo than to bring the zoo to the lab. Vans were hired. Technicians were assigned. Point Machine put his own research on hold and assigned a technician to feed his amphibians in his absence. Satish's research also went on hiatus. "It suddenly seems less interesting," he said.

James attended the experiment on the first day. We set up in one of the new exhibits under construction—a green, high-ceilinged room that would one day house muntjacks. For now, though, it would house scientists. Satish worked the electronics. Point Machine liaised with the zoo staff. I built a bigger wooden box.

The zoo staff didn't seem particularly inclined to cooperate until the size of Hansen's charitable donation was explained to them by the zoo superintendent.

The following Monday we started the experiment. We worked our way through representatives of several mammal lineages: Marsupialia, Afrotheria, and the last two hold-outs of Monotremata—the platypus and the

echidna. The next day we tested species from Xenartha and Laurasiatheria. The fourth day, we tackled Euarchontoglires. None of them collapsed the wavefunction; none carried the spotlight. On the fifth day, we started on the primates.

We began with the primates most distantly related to humans.

We tested lemuriforms and New World monkeys. Then Old World monkeys. Finally, we moved to the anthropoid apes. On the sixth day, we did the chimps.

"There are actually two species," Point Machine told us. "Pan paniscus, commonly called the bonobo, and Pan troglodytes, the common chimpanzee. They look so similar that by the time scientists first realized they were different species in the 1930's, they'd already been hopelessly commingled in zoos." Zoo staff maneuvered two juveniles into the room, holding them by their hands. "But during World War II, we found a way to separate them again," Point Machine continued. "It happened at a zoo outside Hellabrunn, Germany. A bombing destroyed most of the town but left the zoo intact. When the zookeepers returned, they found that only the common chimps had survived. The bonobos had all died of fright."

We tested both species. The machine hummed. We double-checked the results, then triple-checked, and the interference pattern did not budge. Even chimps didn't cause wavefunction collapse.

"We're alone," I said. "Totally alone."

Later that night, Point Machine paced the lab. "It's like tracing any characteristic," he said. "You look for homology in sister taxa. You organize clades, catalogue synapomorphies, identify the outgroup."

"And who is the outgroup?"

"Who do you think?" Point Machine stopped pacing. "The ability to cause wavefunction collapse is apparently a derived characteristic that arose in our species at some point in the last several million years."

"And before that?" I said.

"What?"

"Before that the Earth just stood there as so much un-collapsed reality? What, waiting for us to show up?"

Writing up the paper took several days. I signed Satish and Point Machine as co-authors.

Species and Quantum Wavefunction Collapse

Eric Argus, Satish Gupta, Mi Chang. Hansen Labs, Boston MA.

Abstract

Multiple studies have revealed the default state of quantum systems to be a superposition of both collapsed and un-collapsed probability wavefunctions. It has long been known that subjective observation by a mind or consciousness is a requirement for wavefunction collapse. The goal of this study was to identify the higher-order taxa capable of causing wavefunction collapse through observation and to develop a phylogenetic tree to

clarify the relationships between these major animal phyla. Species incapable of wavefunction collapse can be considered part of the larger indeterminate system. The study was carried out at the Boston Zoo on multiple orders of mammalia. Here we report that humans were the only species tested which proved capable of exerting wavefunction collapse onto the background superposition of states, and indeed, this ability appears to be a uniquely derived human characteristic. This ability most likely arose sometime in the last six million years after the most recent common ancestor of humans and chimpanzees.

James read the abstract. He came to my office.

"But what do the results mean?"

"They mean whatever you think they mean."

Things moved fast after that. The paper was published in *The Journal of Quantum Mechanics*, and the phone started ringing. There were requests for interviews, peer review, and a dozen labs started replication trials. It was the interpretations that got crazy, though. I stayed away from interpretations. I dealt with the facts. I turned down the interviews.

Satish worked on perfecting the test itself. He worked on downsizing it, minimizing it, digitizing it. Turning it into a product. It became the Hansen double-slit, and when he was done, it was the size of a loaf of bread—with an easy indicator light and small, efficient output. Green for yes, and red for no. I wonder if he knew then. I wonder if he already suspected what they'd use it for.

"It's not about what is known," he said. "But what is knowable."

He abandoned his gate arrays. Above his work station I found a quote taped to the wall, torn from an old book.

Can animals be just a superior race of marionettes, which eat without pleasure, cry without pain, desire nothing, know nothing, and only simulate intelligence?

—Thomas Henry Huxley, 1859

In the spring, a medical doctor named Robbins made his interest in the project known through a series of letters. The letters turned into phone calls. The voices on the other end belonged to lawyers, the kind that come from deep pockets. Robbins worked for a consortium with a vested interest in determining exactly, once and for all, when consciousness first arises during human fetal development.

Hansen Labs turned him down flat until the offer grew a seventh figure.

James came to me. "He wants you there."

"I don't care."

"Robbins asked for you specifically."

"I don't give a damn. I don't want any part of it, and you can fire me if you want to."

James grew a weary smile. "Fire you? If I fired you, my bosses would fire me." He sighed. "This guy Robbins is a real prick, do you know that?"

"Yeah, I know. I've seen him on TV."

"But that doesn't mean he's wrong."

"Yeah, I know that, too."

Hansen provided technicians for the testing. The week before the tests were going to occur, I got the call. I'd been expecting it. Robbins himself.

"Are you sure we can't get you to come?"

"No, I don't think that's possible."

"If the issue is monetary, I can assure you—"

"It's not."

There was a pause on the line. "I understand," he said. "All the same, I wanted to personally thank you. It's a great thing you've accomplished. Your work is going to save a lot of lives."

I was silent. "How did you get the mothers?"

"They're committed volunteers, each one. Special women. We're a large, national congregation, and we were able to find several volunteers from each trimester of pregnancy—though I don't expect we'll need more than the first one to prove the age at which a baby is ensouled. Our earliest mother is only a few weeks along."

I chose my next words carefully. "You're fine with them taking the risk?"

"We have a whole staff of doctors attending, and medical experts have already determined that the procedure carries no more risk than amniocentesis. The diode inserted into the amniotic fluid will be no larger than a needle."

"One thing I never understood about this . . . a fetus's eyes are closed."

"I prefer the word baby," he said, voice gone suddenly tight as a drum. "A baby's eyelids are very thin, and the diode is very bright. We have no doubt they'll be able to sense it. Then we have merely to note wavefunction collapse, and we'll finally have the proof we need to change the law

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and put a stop to the plague of abortions that has swept across this land."

I put the phone down. I looked at it. Plague of abortions. I've never trusted people who think they have all the answers. Fanaticism, on either side of an issue, has always seemed dangerous to me. I picked the phone up again. "You think it's as simple as that?"

"I do. When is a human life a human life? That is always what this particular argument has been about, has it not? Now we'll finally be able to prove that abortion is murder, and who could argue? I sense that you don't like me very much."

"I like you fine. But there's an old saying, 'Never trust a man with only one book.'"

"One book is all a man needs if it's the right book."

"Have you considered what you'll do if you're proven wrong?"

"What do you mean?"

"What if wavefunction collapse doesn't occur until the ninth month? Or the magical moment of birth? Will you change your mind?"

"That's not going to happen."

"Maybe," I said. "But I guess now we find out, don't we."

The night before the experiment, I called Point Machine. It was call or drink. And I didn't want to drink. Because I knew if I drank again, even a single sip, I'd never stop. Not ever.

He picked up on the fifth ring. Faraway voice.

"What's going to happen tomorrow?" I asked.

There was a long pause. Long enough that I wondered if he'd heard me. "Not sure," he said. The voice on the other end was coarse and weary. It was a voice that hadn't been sleeping well. "Entogeny reflects phylogeny," he said. "Look early enough in gestation and we've got gills, a tail. The roots of the whole animal kingdom. You climb the phylogenetic tree as the fetus develops, and the newer characteristics get tacked on last. What Robbins is testing for is only found in humans, so my gut tells me he's wrong, and it comes late. Real late."

"You think it works that way?"

"I have no idea how it works."

The day of the experiment came and went.

The first hint that something went wrong came in the form of silence. Silence from the Robbins group. Silence in the media. No press conferences. No TV interviews. Just silence.

The days turned to weeks.

Finally, a terse statement was issued by the group which called their results inconclusive. Robbins came out a few days later, saying bluntly that there had been a failure in the mechanism of the tests.

The truth was something stranger, of course. And of course, that came out later, too.

The truth was that some of the fetuses *did* pass the test. Just like Robbins hoped. Some did trigger wavefunction collapse—but others didn't. And gestational age had nothing to do with it.

Two months later, I received the call in the middle of the night. "We found one in New York." It was Satish.

"What?" I rubbed my eyes, trying to make sense of the words.

"A boy. Nine years old. He didn't cause wavefunction collapse."

"What's wrong with him?"

"Nothing. He's normal. Normal vision, normal intelligence. I had a conversation with him. We tested him five times, but the interference pattern didn't budge."

"What happened when you told him?"

"We didn't tell him. He stood there staring at us."

"Staring?"

"It was like he already knew. Like he knew the whole time it wouldn't work."

Summer turned to fall. The testing continued.

Satish traveled the country, searching for that elusive, perfect cross-section and a sample size to fit the chi-square. He collected data points, faxed copies back to the lab for safekeeping.

In the end, it turned out that there were a lot of people who couldn't collapse the wavefunction—a certain consistent percentage of the population who looked like us, and acted like us, but lacked this fundamental quality of humanity. Though Satish was careful not to use the term "soul," we heard it in the gaps between the words he spoke during his late night phone calls. We heard it in the things he didn't say.

I pictured him on the other end of the line, sitting in some dark hotel room, fighting a growing insomnia, fighting the growing loneliness of what he was doing.

Point Machine sought comfort in elaborately constructed phylogenies, retreated into his cladograms. But there was no comfort for him there. "There's no frequency distribution curve," he told me. "No geographical epicenter, no disequilibrium between ethnographic populations, nothing I can get traction on."

He pored over Satish's data, looking for the pattern that would make sense of it all.

"It's almost random," he said. "It doesn't act like a trait."

"Then maybe it's not."

He shook his head. "Then who are they, some kind of empty-set? Non-player characters in the indeterminate system? Part of the game?"

Satish had his own ideas.

"Why none of the scientists?" I asked him one night. "If it's random, why none of us?"

"If they're part of the indeterminate system, why would they become scientists?"

"What do you mean?"

"It's like a virtual construct," Satish said. "You write the code, a series of response algorithms. Wind them up and let 'em go."

"This is crazy."

"I didn't make the rules."

"Do they even know what you're testing them for, when they look at your little light? Do they know they're different?"

"One of them," he said. He was silent for a moment. "One of them knew."

And then, days later, the final call. From Denver. The last time I'd ever speak to him.

"I don't think we're supposed to do this," he said, his voice strangely coarse.

I rubbed my eyes, sitting up in bed.

"I don't think we're supposed to build this kind of test," he said. "The flaw in reality that you talked about . . . I don't think we were expected to use it this way. To make a test."

"What are you talking about?"

"I saw the boy again. The boy from New York." And with that, he hung up.

Ten days later, Satish disappeared, along with his special little box. He got off a plane in Boston, but didn't make it home. I was at the lab when I got the call from his wife.

"No," I said. "Not for days." Then, "Yeah, I'll call the minute I hear something."

She was crying into the phone.

"I'm sure he's fine," I lied.

When I hung up, I grabbed my coat and headed for the door. Bought a fifth of vodka and drove to the hotel.

Stared in the mirror.

Eyes gray like storm clouds, gray like gunmetal.

I spun the cap off the bottle and smelled the burn. Music filtered through the thin walls, a soft melody, a woman's voice. I imagined my life different. I imagined that I could stop here. Not take the first drink.

My hands trembled.

The first sip brought tears to my eyes. Then I upended the bottle and drank deep. I tried to have a vision. I tried to picture Satish happy and healthy in some bar somewhere working on a three-day binge, but the image wouldn't come. That was me, not Satish. Satish didn't drink. I tried to picture him coming home again. I couldn't see that either.

Do they know they're different, I'd asked him.

One of them, he'd said. *One of them knew*.

When the bottle was half empty, I walked to the desk and picked up the envelope marked "screen results." Then I looked at the gun. I imagined what a .357 round could do to a skull—lay it open wide and deep. Reveal that place where self resides—expose it to the air where it would evaporate like liquid nitrogen, sizzling, steaming, gone. A gun could be many things, including a vehicle to return you to the implicate. The dream within a dream.

The more complex the system, the more ways it can go wrong. Point Machine had said that.

And things go wrong. That spotlight. Little engines of wavefunction collapse. Humans can never see reality as it is: we observe it into existence. But what if you could control that spotlight, dilate it like the pupil of an

eye, stare deep into the implicate order. What would you see? What if you could slide between the sheaths of subjective and objective? What then? Maybe there have always been people like that. Mistakes. People who walk among us, but are not us. Only now there was a test to point them out.

And maybe they didn't want to be found.

I pulled the sheet of paper out of the envelope. I unfolded it and spread it out flat on the desk. I looked at the results—and in so doing, finally collapsed the probability wave of the experiment I'd run all those months ago. Though of course the results had been there all along.

I stared at what was on the paper, a series of shaded semi-circles—a now familiar pattern of light and dark. ○

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WHAT YOU ARE ABOUT TO SEE

Jack Skillingstead

Jack Skillingstead tells us, "This is one of a handful of stories I wrote after attending a science fiction event in Tempe, Arizona. It was nice visiting a fictional landscape other than the Pacific Northwest. Two of the stories had optimistic conclusions. One did not. I'm not saying which ending the present story has. Readers can find one of the other Arizona tales in Lou Anders' *Fast Forward 2* anthology.

It sat in a cold room.

Outside that room a Marine handed me an insulated suit. I slipped it on over my street clothes. The Marine punched a code into a numeric keypad attached to the wall. The lock snapped open on the heavy door, the Marine nodded, I entered.

Andy McCaslin, who looked like an over-dressed turnip in *his* insulated suit, greeted me and shook my hand. I'd known Andy for twenty-five years, since our days in Special Forces. Now we both worked for the N.S.A., though you could say my acronym was lowercase. I operated on the margins of the Agency, a contract player, an accomplished extractor of information from reluctant sources. My line of work required a special temperament, which I possessed and which Andy most assuredly did not. He was a true believer in the *rightness* of the cause, procedure, good guys and bad. I was like Andy's shadow twin. He stood in the light, casting something dark and faceless, which was me.

It remained seated—if you could call that sitting. Its legs, all six of them, coiled and braided like a nest of lavender snakes on top of which the alien's frail torso rested. That torso resembled the upper body of a starving child, laddered ribs under parchment skin and a big stretched belly full of nothing. It watched us with eyes like two thumbnail chips of anthracite.

"Welcome to the new world order," Andy said, his breath condensing in little gray puffs.

"Thanks. Anything out of Squidward yet?"

"Told us it was in our own best interests to let him go, then when we wouldn't it shut up. Only 'shut up' isn't quite accurate, since it doesn't vocalize. You hear the words in your head, or sometimes there's just a picture. It was the picture it put in the Secretary's head that's got everybody's panties in a knot."

"What picture?"

"Genocidal carnage on a planet-wide scale."

"Sounds friendly enough."

"There's a backroom theory that Squidward was just showing the Secretary his own secret wet dream. Anyway, accepting its assertions of friendliness at face value is not up to me. Off the record, though, my intuition tells me its intentions are benign."

"You look tired, Andy."

"I feel a little off," he said.

"Does Squidward always stare like that?"

"Always."

"You're certain it still has the ability to communicate? Maybe the environment's making it sick."

"Not according to the medical people. Of course, nothing's certain, except that Squidward is a non-terrestrial creature possessed of an advanced technology. Those facts are deductible. By the way, the advanced technology in question is currently bundled in a hanger not far from here. What's left looks like a weather balloon fed through a shredder. Ironical?"

"Very." I hunched my shoulders. "Cold in here,"

"You noticed."

"Squidward likes it that way, I bet."

"Loves it."

"Have you considered warming things up?"

Andy gave me a sideways look. "You thinking of changing the interrogation protocols?"

"If I am it wouldn't be in that direction."

"No CIA gulag in Romania, eh."

"Never heard of such a thing."

"I'd like to think you hadn't."

Actually I was well familiar with the place, only it was in Guatemala, not Romania. At its mention a variety of horrors arose in my mind. Some of them had faces attached. I regarded them dispassionately, as I had when I saw them in actuality all those years ago, and then I replaced them in the vault from which their muffled screams trouble me from time to time.

Andy's face went slack and pale.

"What's wrong?"

"I don't know. All of a sudden I feel like I'm not really standing here."

He smiled thinly, and I thought he was going to faint. But as I reached out to him I suddenly felt dizzy myself, afloat, contingent. I swayed, like balancing on the edge of a tall building. Squidward sat in its coil of snakes, staring . . .

* * *

Now return to a particular watershed moment in the life of one Brian Kinney, aka: me. Two years ago. If years mean anything in the present context.

I was a lousy drunk. Lack of experience. My father, on the other hand, had been an accomplished drunk. Legendary, almost. As a consequence of his example I had spent my life cultivating a morbid sobriety, which my wife managed to interrupt by an act of infidelity. Never mind that she needed to do it before she completely drowned in *my* legendary uncommunicative self-isolation. The way I viewed things at the time: she betrayed me for no reason other than her own wayward carnality. You'd think I'd have known better; I'd spent my nasty little career understanding and manipulating the psychology of others.

Anyway, I went and got stinking drunk, which was easy enough. It was the drive home that was the killer. The speedometer needle floated between blurred pairs of numbers. By deliberate force of will (I was hell on force of will) I could bring the numbers into momentary clarity, but that required dropping my gaze from the roller-coaster road sweeping under my headlight beams—not necessarily a good idea. Four. Five. Was that right? What was the limit?

Good question.

What *was* the limit?

I decided it wasn't the four whiskeys with beer chasers. No, it was the look on Connie's face when I waved the surveillance transcript at her like a starter's flag (Race you to the end of the marriage; go!). Not contrite, guilty, apologetic, remorseful. Not even angry, outraged, indignant.

Stone-faced. Arms folded. She had said: "You don't even know me."

And she was right; I'd been too busy *not* knowing myself to take a stab at knowing her.

Off the roller-coaster, swinging through familiar residential streets, trash cans and recycling containers arranged at the curb like clusters of strange little people waiting for the midnight bus. I lived here, when I wasn't off inflicting merry hell upon various persons who sometimes deserved it and sometimes didn't. These days I resorted to more enlightened methodologies, of course. Physical pain was a last resort. Guatemala had been an ugly aberration (I liked to tell myself), a putrid confluence of political license and personal demons unleashed in the first fetid sewage swell of the so-called War On Terror. Anyway, the neighborhood reminded me of the one I wished I'd grown up in. But it was a façade. I was hell on façades, too.

And there was Connie, lifting the lid off our very own little strange man, depositing a tied-off plastic bag of kitchen garbage. Standing there in the middle of the night, changed from her business suit to Levi's and sweatshirt and her cozy blue slippers, performing this routine task as if our world (my world) hadn't collapsed into the black hole of her infidelity.

Connie as object, focus of pain. Target.

Anger sprang up fresh through the fog of impermissible emotion and numbing alcohol.

My foot crushed the accelerator, the big Tahoe surged, veered; I was out of my mind, not myself—that's the spin I gave it later.

The way she dropped the bag, the headlights bleaching her out in death-glare brilliance. At the last instant I closed my eyes. Something hit the windshield, rolled over the roof. A moment later the Tahoe struck the brick and wrought-iron property wall and came to an abrupt halt.

I lifted my head off the steering wheel, wiped the blood out of my eyes. The windshield was intricately webbed, buckled inward. That was my house out there, the front door standing open to lamplight, mellow wood tones, that ficus plant Connie kept in the entry.

Connie.

I released my seatbelt and tried to open the door. Splintered ribs scraped together, razored my flesh, and I screamed, suddenly stone-cold and agonizingly sober. I tried the door again, less aggressively. My razor ribs scraped and cut. Okay. One more time. Force of will. I bit down on my lip and put my shoulder to the door. It wouldn't budge, the frame was twisted out of alignment. I sat back, panting, drenched in sweat. And I saw it: Connie's blue slipper flat against what was left of the windshield. Time suspended. *That bitch.* And the Johnstown flood of tears. Delayed reaction triggered. As a child I'd learned not to cry. I'd watched my mother weep her soul out to no changeable effect. I'd done some weeping, too. Also to no effect. Dad was dad; this is your world. Lesson absorbed, along with the blows. But sitting in the wreck of the Tahoe, my marriage, my life, I made up for lost tears; I knew what I had become, and was repulsed. The vault at the bottom of my mind yawned opened, releasing the shrieking ghosts of Guatemala.

You see, it's all related. Compartmentalization aside, if you cross the taboo boundary in one compartment you're liable to cross it in all the others.

By the time the cops arrived the ghosts were muffled again, and I was done with weeping. Vault secured, walls hastily erected, fortifications against the pain I'd absorbed and the later pain I'd learned to inflict. The irreducible past. Barricades were my specialty.

The Agency stepped in, determined I could remain a valuable asset, and took care of my "accident," the details, the police.

Flip forward again.

You *can* be a drunk and hold a top-secret clearance. But you must be a careful one. And it helps if your relationship with the Agency is informally defined. I was in my basement office *carefully* drawing the cork out of a good bottle of Riesling when Andy McCaslin called on the secure line. I lived in that basement, since Connie's death, the house above me like a rotting corpse of memory. Okay, it wasn't that bad. I hadn't been around enough to turn the house into a memory corpse; I just preferred basements and shadows.

"Andy," I said into the receiver, my voice Gibraltar steady, even though the Riesling was far from my first libation of the long day. Unlike Dad, I'd learned to space it out, to *maintain*.

"Brian. Listen, I'm picking you up. We're going for a drive in the desert. Give me an hour to get there. Wear something warm."

I wore the whole bottle, from the inside out.

The moon was a white poker chip. The desert slipped past us, cold blue with black ink shadows. We rode in Andy's private vehicle, a late model Jeep Cherokee. He had already been driving all day, having departed from the L.A. office that morning, dropping everything to pursue "something like a dream" that had beckoned to him.

"Care to reveal our destination?" I asked.

"I don't want to tell you anything beforehand. It might influence you, give you some preconception. Your mind has to be clear or this won't work."

"Okay, I'll think only happy thoughts."

"Good. Hang on, by the way."

He slowed, then suddenly pulled off the two-lane road. We jolted over desert hardpan. Scrub brush clawed at the Cherokee's undercarriage.

"Ah, the road's back thataway," I said.

He nodded and kept going. A bumpy twenty minutes or so passed. Then we stopped, for no obvious reason, and he killed the engine. I looked around. We were exactly in the middle of nowhere. It looked a lot like my personal mental landscape.

"I know this isn't a joke," I said, "because you are not a funny guy."

"Come on."

We got out. Andy was tall, Scotch-Irish, big through the shoulders and gut. He was wearing a sheepskin jacket, jeans and cowboy boots. A real shit-kickin' son of a bitch. Yee haw. He had a few other sheepskins somewhere, but his walls were wearing *those*. I followed him away from the Jeep.

"Tell me what you see," he said.

I looked around.

"Not much."

"Be specific."

I cleared my throat. "Okay. Empty desert, scrub brush, cactus. Lots of sand. There is no doubt a large population of venomous snakes slithering under foot looking for something to bite, though I don't exactly *see* them. There's also a pretty moon in the sky. So?"

I rubbed my hands together, shifted my feet. I'd worn a Sun Devils sweatshirt, which was insufficient. Besides that I could have used a drink. But of course these days I could always use a drink. After a lifetime of grimly determined sobriety I'd discovered that booze was an effective demon-suppressor and required exactly the opposite of will-power, which is what I'd been relying on up till Connie's death. I have no idea what my *father's* demons might have been. He checked out by a self-inflicted route before we got around to discussing that. I almost did the same a couple of years later, while in the thick of Ranger training, where I'd fled in desperate quest of discipline and structure and a sense of belonging to something. Andy talked me out of shooting myself and afterward kept the incident private. I sometimes wondered whether he regretted that. Offing myself may have been part of a balancing equation designed to subtract a measure of suffering from the world.

Now, in the desert, he withdrew a pack of Camels from his coat pocket and lit up. I remembered my dad buying his packs at the 7-11 when I was a little kid.

"Hey, you don't smoke," I said to Andy.

"I don't? What do you call this?" He waved the cigarette at me, "Look, Brian, what would you say if I told you we were standing outside a large military installation?"

"I'd say okay, but it must be invisible."

"It is."

I laughed. Andy didn't.

"Come on," I said.

"All right, it's not invisible. But it's not exactly *here*, either."

"That I can see. Can't see?"

"Close your eyes."

"Then I won't be able to see *anything*, including the invisible military installation."

"Do it anyway," he said. "Trust me. I've done this before. So have you, probably." I hesitated. Andy was a good guy—my friend, or the closest thing to one that I'd ever allowed. But it now crossed my mind that my informal status vis-à-vis the Agency was about to become *terminally* informal. Certainly there was precedent. We who work on the fringes where the rules don't constrain our actions are also subject to the anything-goes approach on the part of our handlers. Was I on the verge of being . . . severed? By *Andy McCaslin*? He stood before me with his damn cigarette, smoke drifting from his lips, his eyes black as oil in the moonlight.

"Trust me, Brian."

Maybe it was the lingering wine buzz. But I decided I *did* trust him, or needed to, because he was the only one I ever *had* trusted. I closed my eyes. The breeze carried his smoke into my face. My dad had been redolent of that stink. Not a good sense-memory. But when I was little I loved the *look* of the cigarette cartons and packages, the way my dad would say, Pack a Camels non-filter, and the clerk would turn to the rack behind him and pick out the right one, like a game show.

"Now relax your mind," Andy said.

"Consider it relaxed, Swami."

"Try to be serious."

"I'll try."

"Remember the empty mind trick they taught us, in case we ever got ourselves captured by unfriendlies?"

"Sure."

"Do that. Empty your mind."

It was easy, and I didn't learn it from the Army. I learned it at my father's knee, you might say. Survival technique number one: Empty your mind. Don't be there. Don't hear the screaming, even your own.

Andy said, "I'm going to say a word. When I do, let your mind fill with whatever the word evokes."

I nodded, waited, smelling the Camel smoke, my head not empty in the way Andy wanted it to be. I was too preoccupied by a memory of smoke.

"Arrowhead," Andy said.

I felt. . . something.

Andy said, "Shit." And then, "What you are about to see is real. Okay, open your eyes."

We were now standing outside a 7-11 store. The desert ran right up to the walls. A tumbleweed bumped against the double glass doors. The interior was brightly lit. In the back I could make out a pair of Slurpee machines slow-swirling icy drinks in primary colors. After a while I closed my mouth and turned to Andy.

"Where the hell did *this* come from?"

"Instant Unconsciously Directed Association. You like that? I made it up. Only I don't know why this should be your Eyecoda for Arrowhead. I was hoping you'd bring up the real place. Anyway, let's go inside while it lasts."

He started forward but I grabbed his arm.

"Wait a minute. Are we still operating under the disengagement of pre-conceived notions policy, or whatever?"

He thought about it for a moment then said, "I guess not, now that we're sharing a consensus reality. Brian, this 7-11 is actually the Arrowhead Installation."

The coal of an extinguished memory glowed dimly. I *knew* Arrowhead, or thought I did. A top secret base located more or less in that part of the Arizona desert in which we now found ourselves. Or was/did it? The memory was so enfeebled that if I didn't hold it just so it would blow away like dandelion fluff. Still, this wasn't a military base; it was a convenience store.

"Bullshit?" I said.

"Do you remember Arrowhead?" Andy asked.

"Sort of. What is this, what's going on?"

"Listen to me, Brian. We finally got one. We finally got an honest to God extraterrestrial—and it's *in there*."

"In the 7-11."

"No. In the Arrowhead facility that looks like a 7-11 in our present consensus reality. The alien is hiding itself and the installation in some kind of stealth transdimensional mirror trick, or something. I've been here before. So have you. Our dreams can still remember. I've come out to the desert—I don't know, dozens of times? I've talked to it, the alien. It shuffles reality. I keep waking up, then going back to sleep. Here's the thing. It can cloak its prison, reinterpret its appearance, but it can't escape."

I regarded him skeptically, did some mental shuffling of my own, discarded various justifiable but unproductive responses, and said: "What's it want?"

"It wants you to let it go."

"Why me?"

"Ask it yourself. But watch out. That little fucker is messing with our heads."

The store was empty. It was so quiet you could hear the dogs popping with grease as they rotated inside their little hot box. Okay, it wasn't *that* quiet, but it was quiet. I picked up a green disposable lighter and flicked it a couple of times, kind of checking out the consensus reality. It lit.

Andy went around the counter and ducked his head into the back room.

"What are you doing?" I asked.

"Looking for Squidward."

"Squidward?"

"Yeah."

Another dim memory glowed in the dark. For some reason I thought of the Seattle aquarium, where my father had taken us when I was little. It hadn't been a fun experience. I remembered being vaguely repelled by some of the exotically alien examples of undersea creatures. Prescient echo from the future?

Andy snapped his fingers. "Right. Squidward likes it cool."

I followed him into the cold storage run behind the beer, pop and dairy coolers. A man sat on a couple of stacked cases of Rolling Rock, his legs crossed at the knees, hands folded over them. He looked Indian, that nut brown complexion. He was wearing a lavender suit.

"Squidward," Andy said.

I tucked my hands snugly under my armpits for warmth. "Has he asked to be taken to our leader yet?"

"I don't remember."

Squidward spoke up: "You are the torturer."

We both looked at him.

"Sorry, not my gig," I said.

Squidward nodded. "Your gig, yes."

Something unsavory uncoiled in my stomach, then lay still again.

"Andy," I said, nodding toward the door.

He followed me out into the glaring light of the store.

"Talk to me," I said.

He nodded, distracted. "I'm remembering most of it, but who knows what I'll retain next time around. R&D developed some kind of souped-up spectrophotometer gizmo as a hedge against future stealth technology we suspected the Chinese were developing. During a middle phase test in Nevada we saw a vehicle doing some impossible maneuvers, somehow hiding between waves in the visible light spectrum. Naturally we shot it down."

"Naturally."

Andy clutched his pack of Camels, plugged one in his mouth, patted his pockets for matches. I handed him the Zippo.

"Thanks."

He lit up.

"Anyway, it turns out we're as much his captive as he is ours. Uh-oh."

Andy's cigarette dropped from his lips, depositing feathery ash down the front of his sheepskin jacket. He blinked slowly, his eyes going out of focus, or perhaps refocusing inward.

"Oh, shit," he said.

"What?"

"Not again. I have to get away from this."

He turned and stumped out of the store with the sloppy gait of a somnambulist.

"Hey—"

Outside the night absorbed him. I stiff-armed the door. Cold desert wind blew in my face. Andy was gone. So was the Cherokee. But he hadn't driven away in it. I looked around where it had been parked. There were no tire impressions, nothing, just my warped shadow cast over the tawny grit.

I turned back to the 7-11, its solid, glaring reality. I don't know what hackles are exactly, but mine rose to attention. Out here in the desert, alone with a persistent illusion, I felt reduced. Childish fears came awake.

Exerting my will to power or whatever, I entered the store. The Slurpee machine hummed and swirled, hotdogs rotated. The fluorescent light seemed to stutter *inside* my head.

I looked at the coolers, the orderly ranks of bottles and cartons. Damn it.

I approached the door to the cold storage, put my hand on the lever. Fear ran through me like electric current. I felt the world begin to waver, and stepped back. The door, silver with a thick rubber seal, appeared to melt before my eyes. I felt myself slipping away, and so brought the force of my will down like a steel spike. The door resumed its expected appearance. I immediately cranked the handle and dragged it open.

Squidward sat on his beer case stool in exactly the same position he'd been in ten minutes ago.

"Make it stop," I said.

"I don't make things," he replied. "I allow the multiplicity to occur."

"Okay. So stop allowing the multiplicity."

"Not possible, I'm afraid. My survival imperative is searching for a probability in which you haven't killed me."

"But I *haven't* killed you."

"You have."

I stepped toward him. That steel spike? Now it was penetrating my forehead, driving in.

"What do you want from us?"

"From you I want to live," Squidward said. "We are bound until the death is allowed or not allowed, conclusively. I have perceived the occurrence of my expiration at your direction, unintended though it will be. Having access to all points of probability time in my sequence, I foresee this eventuality and seek for a probability equation that spares me. From your perspective also this is a desirable outcome. Without me to monitor and shuffle your world's probabilities the vision vouchsafed your military leader may well occur."

My eyesight shifted into pre-migraine mode. Pinwheel lights encroached upon my peripheral vision. I ground the heels of my hands into my eyes, fighting it, fighting it, fighting . . .

Probabilities shuffled . . .

I woke up next to my wife. In the ticking darkness of our bedroom I breathed a name: "Andy."

Connie shifted position, cuddling into me. Her familiar body. I put my

arm around her and stared into the dark, hunting elusive memories. Without them I wasn't who I thought I was. After a while Connie asked:

"What's wrong?"

"I don't know. I think I was having a dream about Andy McCaslin. It woke me up."

"Who?"

"Guy I knew from the Rangers, long time ago. I told you about him. We were friends."

Connie suppressed a yawn. "He died, didn't he? You never said how."

"Covert op in Central America. He found himself in the custody of some rebels."

"Oh."

"They kept him alive for weeks while they interrogated him."

"God. Are you—"

"That was decades ago, Con. Dreams are strange, sometimes."

I slipped out of the bed.

"Where are you going?"

"Have some tea and think for a while. My night's shot anyway."

"Want company?"

"Maybe I'll sit by myself. Go back to sleep. You've got an early one."

"Sure? I could make some eggs or something."

"No, I'm good."

But I wasn't. In my basement office, consoling tea near at hand, I contemplated my dead friend and concluded he wasn't supposed to be that way. My old dreams of pain surged up out of the place at the bottom of my mind, the place that enclosed Andy and what I knew had happened to him, the place of batteries and alligator clips, hemp ropes, sharpened bamboo slivers, the vault of horrors far worse than any I'd endured as a child and from which I fled to the serenity of an office cubicle and regular hours.

But that wasn't *supposed* to have happened, not to Andy. I rubbed my temple, eyes closed in the dim basement office, and suddenly a word spoke itself on my lips:

Squidward.

My name is Brian Kinney, and today I am not an alcoholic. My *father* was an alcoholic who could not restrain his demons. During my childhood those demons frequently emerged to torment me and my mother. Dad's goodness, which was true and present, was not enough to balance the equation between pain and love. I had been skewing toward my own demon-haunted landscape when Andy McCaslin took my gun from my hand and balanced out the equation for me.

My new world order.

I'm driving through the moonless Arizona desert at two o'clock in the morning, looking for a turn-off that doesn't exist. After an hour or so a peculiar, hovering pink light appears in the distance, far off the road. I slow, angle onto the berm, ease the Outback down to the desert floor, and go bucketing overland toward the light.

* * *

A giant pink soap bubble hovered above the 7-11. Reflective lights inside the bubble appeared to track away into infinity. It was hard not to stare at it. I got out of my car and entered the store. The Indian gentleman in the lavender suit emerged from the cold storage run, a small suitcase in his left hand.

"What goes on?" I said.

"You remember," he said, more command than comment.

And at that instant I did remember. Not just the bits and pieces that had drawn me out here, but *everything*.

"My survival imperative sought for a probability equation by which my death could be avoided. You are now inhabiting that equation. With your permission I will, too."

"What do you need my permission for?"

"You would be the author of my death, so you must also be the willing author of my continued existence. A law of probability and balance."

I thought about Connie back home in bed, the unfathomable cruelty of my former probability, the feeling of restored sanity. Like waking up in the life I *should* have had in the first place. But I also thought of Andy, and I knew it had to go back.

"No," I said to Squidward.

"You must."

"Not if my friend has to die. By the way, isn't it a little warm for you?"

Squidward smiled. "I'm already in my ship."

"Only if I allow it."

"You will, I hope."

"It's the feathery thing," I said.

"Behold."

In my mind's eye images of unimaginable carnage appeared, then winked out. I staggered.

"I am a Monitor, coded from birth to your world's psychic evolution," Squidward said. "I subtly shuffle the broad probabilities in order to prevent what you have just seen. Without me there is a high probability of worldwide military and environmental catastrophe. Such eventualities may be avoided and your species may survive to evolve into an advanced civilization."

"That sounds swell, but I don't believe you. You've been doing plenty of shuffling in captivity. With that power why do you need anything from *me*?"

"That's merely my survival imperative, drawing on etheric energy from my ship's transphysical manifestation. My survival, and perhaps your world's, depend on you permitting this probability to dominate."

I didn't allow myself to think about it.

"Let the original probability resume," I said.

"Please," Squidward said.

"Let it go back to the way it's supposed to be."

"There are no 'supposed to be' probability equations."

I crossed my arms.

Squidward put his suitcase down. "Then because of what you are you will doom me. My probabilities concluded."

"Because of what I am."

"Yes."

Shuffle.

My name is Brian Kinney, and I am the sum total of the experience inflicted upon me.

But not only that. I hope.

The Tahoe's deadly acceleration. Sudden synaptic realization across the Probabilities: *You are about to murder your wife.* The Vault Of Screams yawns open.

Will.

Hanging on the wheel, foot fumbling between pedals.

That big green Rubbermaid trashcan bouncing over the hood, contents erupting against the windshield. It was just garbage, though.

Then a very sudden stop when the Tahoe plows into the low brick and wrought-iron property wall. Gut punch of the steering wheel, rupturing something inside my body. And don't forget a side of razor ribs.

Around the middle of my longish convalescence Connie arrives during visiting hours, and eventually a second convalescence begins. A convalescence of the heart. Not mine in particular, or Connie's, but the one we shared in common. The one we had systematically poisoned over the preceding ten years. Okay, the one *I* had systematically poisoned.

Watershed event.

Happy ending?

It sat in a cold room.

Outside that room I watched a perfectly squared-away Marine enter a code into the cipher pad. I was the sum total of my inflicted experience, but it was the new math. The door opened, like a bank vault. Andy McCaslin looked at me with a puzzled expression.

He was alone in the room. ○

THE SVALBARD ARK

The seeds are waiting
frozen in their arctic vaults
against the future.

—G.O. Clark



Carol Emshwiller's latest books are *The Secret City* and *I Live with You* (both available from *tachyonpublications.com*). In her new story, she returns to one of her favorite subjects—people who live on the edges of society—and explores the wistful plight of someone who is either . . .

WILMER OR WESLEY

Carol Emshwiller

One of his first memories is of a struggle. His mother was defending him from something loud and angry, but he couldn't see what. All he saw was her back. She was holding something big above her head as a weapon. He saw it swing and swing. He thinks it was a frying pan. There was a lot of noise, yelling and grunting and things falling. The window breaking. Dishes breaking.

Then there was quiet. For a long time. He was afraid to cry. Mother had put him in the laundry basket with a quilt under him. He could have climbed out but he didn't, not even after he was hungry and thirsty. It was quiet and there was nobody and he was quiet and nobody, too. He hardly moved at all. It got dark and then light. He didn't move.

Afterwards somebody came. Somebody he didn't know picked him up. It was better to let her do it though he wanted Mama. When more people came the person laughed. She said, "Look at this one. Just the right age."

She took him away from where he was supposed to be. From where he had little animals his mother had made for him out of wood. Lots and lots. Mother said, "Cock-a-doodle-do," and "Moo," and sang songs with ee-eye-ee-eye-oh.

Then a lot of other people came and laughed . . . about him. They didn't even know his name. They called him Willy first, and then Willoughby for a joke, and then Wilmer. Sometimes they forgot and called him Wilber, but mostly Wilmer. He's been Wilmer ever since. What difference does it make? That's what they said, too. "It doesn't matter what we call him."

By now he's forgotten what his mother named him. Once in a while he hears a name that sounds familiar and he thinks that might be the name his mother called him by. Or there must have been a father. At least by now he knows there must have been one. So maybe one of those names that sound familiar was his father's name, though he likes to think it might have been his own. He thinks his real name might have been

something starting with W so they were right about that. Perhaps Wes or Warren. Every time he hears those he shakes for a few minutes. Has to stand still and recover.

One of these days he's going to get out of here. Beyond the glass and mesh. He was too small to do it before. He tried, but he failed every time, and they laughed and laughed. When they found him in a tree and later on a roof, they laughed even more. He didn't give up, he knew he had to grow up more first. This place is beautiful and comfortable. There are books and trees. Food appears. She talks to him. She shows him off to people. They laugh. He still doesn't know why he's so funny.

She says, "Every so often we have to close off the park, but only when he hasn't been spending enough time in front. We want him on display."

She says, "Look how he does just what we always do. Sits on the chair just as we would. Drinks from the cup as we would do. Leans his head on his hands when sad. He can even ride that bicycle. He can use a spoon and knife and fork as well as you or I. He likes ice cream just as much as any kid.

"He was hard to capture. His mother fought just as any mother would. Afterwards we left him alone for a while. In fact a whole day. We didn't want to get bit and we thought he'd calm down once he got hungry and scared enough.

"He knows well over a hundred words. He can follow directions. I taught him to read. Of course nothing complicated. Here is a little peacock he carved from a piece of wood he found in his park. There's no harm in him having a little knife and we let him have hammers and saws.

"No, no, nothing else lives in his park with him. He's all alone there.

"He doesn't talk much but he can make himself understood. Actually, I don't think he wants to talk. I keep thinking if there was the right creature around, say another of his own kind, he might talk, but the senior members of the study don't want the expense. When the time comes we'll choose a suitable mate for him from some other park or zoo.

"I've taught him everything he knows. I wrote him up in *Science* magazine. I showed him the article and he seemed to like it, though who knows how much he really understands."

They killed my mother. I can't imagine why. I can't imagine why this park and this confinement.

I remember what she looked like, hair the same brown as mine. Eyes, greenish gray like mine. Or have I just made her up out of how I look myself? (There's a mirror in my hut.) I know she mostly wore greens and blues and browns, but she dressed me in brighter colors. I had a striped shirt. Red and blue and yellow. She smelled of her cooking: cinnamon, lemon, gingerbread . . . for me. Back then everything was for me, the toys she carved, and even her pots and pans, cardboard boxes and paper bags, all mine to play with.

I must say, though, that this person, this Roberta Haskell, has made me a very nice park. The one in back. That it's full of flowers is her doing. That there's not only my little hut, but also a treehouse, is her doing. That

there's an apple tree and an apricot tree, pines, even raspberries and strawberries . . . all her doing. I know cameras watch me, I see them turn, I hear the buzz of the focus change, but I know where the secret places are where the cameras don't reach.

She looks after me, you could say, like a mother, but it isn't like a mother. I'm her dissertation. Her claim to fame. The topic of her lectures. Sometimes I'm brought on stage beside her. People laugh though she tells them not to. "Almost human," she says, and, "Please, a little respect."

Usually I sit at a desk beside the lectern. Sometimes I speak, too. I know better than to say I won't do it. (Since the beginning, back in Mother's laundry basket, I've been as quiet and as much a "*nobody*" as it's possible to be.) "My name is Wilmer," I say, knowing full well it isn't. "I am the research project of Dr. Roberta Haskell. Most of my kind are found living in woods and copses and grasslands in what might best be described as the north west quadrant of the Midwest."

They try to hide their laughter behind their hands.

"Bravo, Willy," Roberta says, and, "You may sit down now."

Do my eyes protrude? Are my feet splayed? Is my forehead too lumpy? My nose too long? As to the color of my skin, I see no difference between mine or theirs, and they have many colors. Am I spotted? Am I too light or too dark? I don't see it. My toes are no more grasping than theirs. I have no tail.

If there's ever a chance to get away it will be just before or just after one of these lectures. I'll need different clothes and a hat Roberta hasn't seen before.

If there are more of my kind, where are they? I suppose incarcerated in other parks. And where is this "north quadrant of the Midwest"? Would I be free if I found that place? She has said she will bring me a mate when I'm older. From where? She even asked me what my preference was. So there must be others in other zoos and every town has a zoo.

I have the thought that I'd rather find somebody on my own.

I have a small "front yard" where people watch me from behind glass. They point and giggle. (Especially when I lean back and put my feet up on my desk and my hands behind my head, or whenever I make any such gesture that reminds them of themselves.) I don't mind the children giggling, but grown-ups?

The "front yard" is where they used to put the toys when I had toys, my fire engine and little cars, and it's where they bring the food tray. In front I live mostly on a platform so people can see me better (under my plaster tree and next to my phony rocks). There's a table and chair, a desk, and lately a rocking chair. One of my bookcases is out there. Other bookcases are not only in my hut, but even in my tree house. I have a radio and TV set. All the programs are chosen for me. A lot of my schooling comes from them, but I've had to learn to read between the lines. I know more than Roberta suspects. At least I hope so.

I've been here so long now it seems the faces behind the glass wall are as the world is and always will be. I can pay attention to them or not.

For a while there was a girl who came often and just stood there. First

behind everybody else. I didn't notice her until I saw she never laughed at me. Later, when she waved and smiled it was *to me*, not just to get me to move or react. She looked to be about my age. (They thought I was twelve or thirteen then. We don't know what my exact age is.) I smiled back at her. I thought of her as my friend. Sometimes I held a book up to her, close to the glass. (Once I showed her the picture of a crow making a tool out of a wire.) We wrote notes to each other. We would stand close to the glass and hold up our tablets. I wanted to write, I LOVE YOU, but I didn't dare though once I did write, YOU'RE NICE. That made her shy. She stepped out of sight for a few minutes. By the time she came back and wrote, YOU ARE, TOO, I'd almost forgotten what it was about.

We exchanged names. She wrote: I'M SARAH, and I wrote: THEY CALL ME WILMER BUT THAT'S NOT MY REAL NAME. Then I wrote that my real name was Wesley but I also wrote that I wasn't sure about that. She made a gesture of feeling sad.

I looked at myself in my mirror after that. I wondered what she could see in me that might have seemed nice. To myself, I looked anxious and frowning. I have a mousy kind of face, but then she does, too. Maybe that's another reason why I liked her so much, aside from the fact that she seemed to care about me as if I was a real person.

For years she came almost once a week, but hasn't for a long time. I think she must have moved away. I wish she'd said goodbye so I'd have known not to keep waiting for her. That was so long ago I wonder if we'd recognize each other anymore.

I'm going to escape. I've started getting ready. I've made myself a hat. Not a very good one, but it'll disguise me some. I sewed a blanket into a jacket. By hand. It took a long time. I made a phony pair of glasses out of wire and clear plastic. I wondered about ways to dye my hair. I gave up on that, but I'm bringing along scissors so I can cut it as soon as I get away from Roberta.

I picked out a name for myself. One of those that makes me tremble every time I hear it. Wesley. Wes.

I bring my knife, and one of my favorite books. I had asked Roberta for an astronomy book. She said I wouldn't understand it but she got it for me anyway. I'll bring that one, though it's rather large. When I go off with her to her lectures, I always carry a plastic bag with a book or a magazine and a drink and a snack.

This time Roberta is giving her slide show and talk about me in a large lecture hall. By now we trust each other . . . or, rather, she trusts me. I always help carry her briefcase and her slides. She dismisses me near the end of her talk. Usually I wait in the wings and read until she finishes. Then she calls me to come out for a final bow.

This time I change clothes and cut my hair in the men's room. Then I actually come and sit with the audience, looking at slides of myself. "Watch his opposable thumb. Watch his fingers on his flute. We gave him a recorder and look what he did with it. Here's a song he made up all by himself."

Needless to say, I don't appear for my bow. Roberta looks worried and runs off stage and doesn't even take her own last bow.

I leave with the crowd.

I'm so happy and excited to be out with the regular people—to be walking along as if I was one of them—I actually skip and then I jump straight up. I can't help myself, but then I see nobody else is hopping around as I am and I try to walk as they do.

I'm bold. I talk to people. I never wanted to before, but now I want to. They answer just as if I was one of them.

I say, "How did you like the creature?" and they say, "Remarkable." "And Roberta Haskell? How did you like her?" "Doing interesting and important work," they say, and, "She sure gives her all to this project."

It's dark. I'm out and away. On my own. I walk as fast as I can. I want to run but I think I'd better not. I stay in the crowded places. I have no money. I wonder how hard it is to get a job. Maybe I can just do things for people, carry their bundles, clean their houses, wash their dishes. I know there are people who do such things for others but I don't know how to begin.

I see a beggar on the corner. I don't think I should ask him, though. He's exactly *not* doing what I *do* want to do.

As I walk, I look at young women in a whole new way. I've looked at them from my front yard, it's true, but here they are, right in front of me. I could touch them. Could talk to them. Woo them even. Any of them might be a possible mate. Do I want a blonde or a brunette or what? Did it matter, blue jeans or high heels? Lipstick or no makeup?

But first I have to find a way to make a living. How does one proceed? How did all these people come to be able to do all the things they're privileged to do?

If I had my choice, I'd like to work in a zoo. Take care of animals. Of course I've never had anything to take care of so I really don't know much about it. Once I asked Roberta for a kitten or a puppy. She thought it would be a mistake for me to have one. I wonder why.

But where is this "northwest quadrant of the Midwest" with its copses and groves, full, as they said, of prairie chickens and pheasants, where I would find "my own kind"? In what direction is that?

West, I think, toward the setting sun.

I ask which way is the setting sun? I have to ask three people before somebody knows.

I start in that direction and walk a long time.

I didn't think it would be so hard. Then I think of hiding on a train. I ask a beautiful woman the way to the station. She smiles and tells me how to get there. "It's kind of a long way," she says. And I say, "That's all right." "Take care," she says. And I say, "I will and you take care, too."

After that I lean against the wall for a minute, dizzy with joy. It was so nice. She was so pleasant. Her eyes were blue.

It takes a long time but I make it to the train station before dawn. I did spend a lot of time looking in store windows and examining plants that aren't in my park. It's spring. There are sparrows.

I'm pretty excited but even so I fall asleep for a while on one of the benches in the waiting room.

I wake up hungry. There's food for sale all around the station. Things I've never eaten before or even seen. I know stealing is a bad thing, but no harm in asking. Or is there? "All I want is a piece of bread." (Ask for the smallest thing.) "And just a glass of water." (I know to say please.)

The man says, "The cup'll cost you five cents," but the other man says, "Oh for Heaven's sake, give the guy the cup," and that man hands me a sandwich, too. He didn't call me a creature, he said, "the guy."

The sandwich is all wrapped up tight so I can put it in my pocket.

Then I find the train for Chicago. I know where towns are in this country but I don't see any trains for farther west. I thought if I got on, then even if I lasted only a little while, at least they'd throw me off in some other place than here and in the right direction.

I'm good at avoiding the conductors. Where they find me and put me off is Kalamazoo.

"Young man," they say. (Young man!) "get yourself a job and then buy a ticket. Or go hitchhike if you must."

Hitchhike. Why didn't I think of that?

But I'm thinking I'm lucky now, because, from its name, I think there must be a big zoo. I can visit it and see if there are any of my kind there and maybe I can let them out and then I'll have company while looking for the rest of us and maybe they'll know where the rest of us are.

But on the way out of the station, I see my own picture up on the wall, but not with my phony glasses and my hat, and my new haircut. VALUABLE, it says. VALUABLE SPECIMEN. Specimen! REWARD. \$30,000 for return unharmed. If I returned on my own could I get the money? I don't suppose so. And then where could I spend it?

Even though the picture doesn't look much like me now, I pull my hat lower and hurry out of there, walk a while and then ask the way to the zoo.

When I get there I'm disappointed. It's just a little zoo and I don't see anybody at all like me. There are little free packages of mixed grains for feeding some of the animals. I take some for myself. Not very pleasant eating. Some of it's oatmeal. That isn't so bad raw.

I stay after the zoo has closed and go to sleep on a bench not far from the elephant. She had spilled her peanuts. I got more food that way. Funny thing, when she saw me picking up the ones too far for her to reach, and eating them, she picked up some she could reach and handed them to me. What do you say to an elephant? I nod and thank her.

Later somebody in a uniform comes by. He hits the bottoms of my feet with his night stick, pretty hard, but even so he isn't a bad person. He says, "Hey, fella, you can't sleep here." Then says, "Haven't you got a place to go?" Then he sees my three empty little bags of llama treats. "Those are a little hard on the stomach." Then he takes pity on me. "Come on, Joe . . ." (why does he think my name is Joe?) "I have a little place behind the ostriches."

But first he says hello to the elephant and pats her trunk when she reaches out to him, and then leads me to his little office, sits me down and makes me tea.

I want to ask him if he has any creatures in the zoo at all like me, but I

think maybe I shouldn't. Besides, I don't know what my kind is. Except for "those creatures living in the western quadrant of the Midwest."

He gives me one of his ham sandwiches. Then he says if I want I can curl up on his floor, he'll wake me when his work is over and we'll go out for breakfast together. His name is Vern. I say Joe is fine with me but he looks at me funny. He knows it isn't true. Then I say, Wesley. Wes. For a minute I can't say anything more because it's so wonderful to be able to say that name.

He pours me more tea and I calm myself down with a few sips. He's halfway out the door when I think to call him back to ask if there's a job I can do in the zoo, and he says, maybe so. He'll see about it. There might be. Even though Roberta said you weren't supposed to use that word, I say, "I'll shovel shit."

I fall asleep right away, happy, thinking everything is solved.

What wakes me is the fax machine clicking. I get up to see how it works. I know about them, but I've never seen one in action, and here comes my picture with the WANTED on it. It would be nice for Vern to get the reward, he helped me, but I'd rather be free. Good I didn't say my name . . . or, rather, the name they call me. It says right on it, answers to the name of Willy or Wilmer.

I sneak away. My watch says 5 AM—the watch Roberta gave me. I'm sorry about not having breakfast with Vern and more so about not working here. Maybe it's exactly the zoos and the railroad stations where my picture will be.

So then it's off to hitchhiking. I think I should get out to the main road West. I ought to figure out the next nearby towns and I ought to have a map, but if I had any money I'd get breakfast instead. I don't know how people get along. How do they get started? Except, I almost did at the zoo. I guess it's not so hard if you're in the right place and know to ask.

Then I remember there are libraries where you can look up everything there is.

The lady there helps me find a map, but I don't even have paper and pencil. Is it all right to ask for those in the library? I do it and it's okay. She even has little papers and pencils that seem to be just for giving out. I write down towns all the way to Denver. That should be more than far enough.

But I should have known that, if my picture was some places, it will be everywhere. Cops pick me up standing on the shoulder with my thumb out. That man, Vern, called in that I'd been there. I wasn't sleeping in my hat and I'd left my phony glasses back by the elephant so he suspected I was me. Roberta tells me that after. She's very disappointed in me. She thought we were friends and trusted each other. She says she can never trust me again. Also I'll not be able to go on stage with her anymore. She said she thought of herself as my mother . . . at least to some extent. Wasn't she the one who rescued me, way back then, from my laundry basket? Didn't she pick me up and hug me? Didn't she feed me my first meal after they took me? Didn't she buy me almost everything I asked for? She says I should have known escape was impossible.

I had thought they wouldn't dare put me in chains or any such things while on display but they do. There's a big new sign saying that I tried to escape so now I'm shackled "to ensure that I'll be here for your pleasure." I lasted less than three days out there.

Will I grow old here? Chained, so that even limping out to my park is a chore? I can't climb to my tree house and the books I left up there. I think they want to display me chained. They could just as well have put an ankle bracelet on me. Perhaps they want the chains to be visible to punish me for trying to escape and to humiliate me in front of the viewers. Now there's a warning sign. MAY BE DANGEROUS. I've never hurt anybody or anything. Not even the bugs in my park. I've looked at them with interest.

I think to find a way to get even with Roberta. I might do something to sabotage her dissertation, but I don't know if I really want to do that. She's not at all like a mother, but we've worked together for so long. . . . I can't say I don't like her. And I'm not that kind of man. (I'm thinking, Man.) Would a proper man be so vindictive?

Then Sarah comes back. I'd not have recognized her if she hadn't stood at the back and smiled (the exact same shy smile) and waved exactly as she used to, a little sideways motion of her hand. A secret wave. She has the same little pointy face but all grown up.

She has her tablet with her and I go get mine. She comes close and writes: JUST FOR A VISIT.

She writes that she's on her way to a summer workshop in Peru.

I'M A BOTANIST NOW. I LOVE THE MOUNTAINS. DO YOU?

I'VE NEVER SEEN THEM.

WHAT DID YOU DO TO HAVE CHAINS ON? I CAN'T BELIEVE YOU DID ANYTHING BAD.

I DIDN'T. I ESCAPED. FOR THREE DAYS.

She makes a sad face.

But she's gone way beyond me. I can hardly even deal with life outside my park let alone with a botanist going to Peru. Even so, seeing her, I can't help but feel happy and even hopeful. I think maybe she can do something to help me. Maybe I can escape some way—with her. She's the one who always looked at me as if I was a real person. But then she brings a man up to the glass. She writes: THIS IS JOEL.

I nod and smile. I make the okay sign.

So that's that, then. ○

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RADIO STATION ST. JACK

Neal Barrett, Jr.

Author Neal Barrett, Jr., has a habit of giving us a sometimes less-than-cheery glimpse of what it's like after "Everything Goes to Hell." His terrific but disturbing novel, *Through Darkest America*, and its sequel, "Dawn's Uncertain Light," show us a future view of movin' west, where the herds look—well, a lot like you and me. Then there's "Ginny Sweethips' Flying Circus" (*Asimov's*, February 1988), a delightful post-apocalyptic story that was a finalist for both the Nebula and Hugo Awards. Add "Class of '61" (*Asimov's*, October 1987) for a taste of alien ghosts and his recent novel *Prince of Christler-Coke*, which envisions a too-close-for-comfort Corporate States of America. Neal recently appeared in *Asimov's* April/May issue, with "Slidin'"—a weird and wonderful story that there's absolutely *no* way to describe. The one you're about to read is totally different, but it's classic Neal Barrett, Jr. It couldn't be anyone else.

Late in the summer afternoon, Father Mac took a lawn chair out beneath the trees to watch the war. The patio was brick, laid in a haphazard pattern that was pleasing to the eye, the surface now subdued, aged to the dark tones of earth, buckled by oaks that had been there a hundred years or more. It was a place that remained in shadowed light throughout the day. Mac liked to sit there and read old books or watch the rain sweep in from the south. There was no rain now, only an August sky seared to the color of bone.

The back of the house faced the southwestern crest of the hill, behind the radio station and the Church of Saint John. From there, Mac could see the town, the buildings, and the streets through a hazy veil of blue. In spite of the smoke and several isolated fires, it appeared to be a quiet, rather orderly sort of war, and quickly winding down. The raiders had tired of small arms. They were settled in now near Hubbard and Fourth, lobbing in rounds at the Baker Hotel. The gunners seemed to lack any skill. They enjoyed the sound of mortar fire, and were unconcerned with hits. Now and then a shell would strike its mark, sending a shower of masonry to the street, drowning out the ragged cheers.

The Baker had once been fifteen stories high, a plain brick structure except for the architect's statement on top, a Spanish mission and medieval keeps. Missouri cannoneers had done the mission in proper in the spring, reducing the stories down to ten. They had stolen several horses, and beaten the town in volleyball.

Mac knew little about the present raiders. They seemed to favor red. A red hat or two, red shoes, and crimson pantaloons. By chance or design, they'd surprised a pride of Choctaws camping on the Brazos out of town, chased them up dry Pollard Creek and into the Baker Hotel. Mac didn't know the raiders, but he knew about the Choctaw crew. They had drifted into town from Oklahoma, intent on stealing canned peaches or whatever they could find.

Sister Leah had talked to one at market and gathered several facts. The Indians were deranged, and practiced unfamiliar rites. As manhood approached, they removed the right eye and tattooed their private parts. The one Leah saw liked to hang around the alley back of Karl's Katz'n Dogs. They lurked about a lot, but did not attack the town.

Mac saw the wisdom in that. Monocular vision might limit the military arts. Whatever the reason, they never got a foray off the ground. Now they were holed up in the Baker, waiting for the raiders dressed in red to run out of mortar shells.

A cheer went up below. Peering through the haze, Mac saw that the regulars at Hal's Bar and Ready-to-Wear had brought chairs outside to watch the show. Several of the raiders wandered over for a drink. Hal set up an extra table, and went back for whiskey and ale. A round went long and dissolved an abandoned Texaco. Hal would start watering the drinks. Dilution was the rule if you came from out of town.

The radio tower was etched against a cloudless afternoon. The station was a cinderblock square, painted on the sly by Brother Steve, painted while Mac was out of town, without Mac's knowledge or consent, painted a vague, El Paso service station blue with a hint of indigo, and possibly toxic to the eye.

Mac was headed for the station with regret when he caught sight of Sister Mary Jo coming down the pathway from the church. Mary Jo saw him, or possibly not, it was always hard to tell. As ever, she walked on by and didn't stop.

Mac felt a surge of irritation and desire. He picked up his pace to cut her off, to intercept perky bare feet and frizzled hair. The key to Mary Jo

was awkward grace, a girl who was basically legs and collarbones. A girl, Mac thought, who ought to play guitar, who could pick sweet tunes you couldn't name.

He said hello. Waited for response of any sort.

"So," said Mary Jo. She stopped because Mac was in the way. "So how's the war?"

"I'd say it's nearly done. There wasn't much to do."

"Leah says an Indian isn't going to die the first time. Says you got to kill 'em twice."

"I don't think you do."

"Leah knows a lot of savage lore."

"Well, that's true," Mac said. He didn't press the point. Didn't tell her Indians weren't a big problem anymore, not if they'd checked into the Baker Hotel.

Mary Jo didn't move, didn't try to get away. Her eyes seemed to focus out of state. Mac was staggered by her eyes, the shape of her nose, the way she moved her mouth. The way one tooth was independent of the rest. He had let her know he cared in a dozen different ways. At first he thought her distant and aloof. Now, he knew she was simply unconcerned. With him, with the weather, with anything at all. Indifferent to love, to the state of the union, to proper dental care.

"Oh, I forgot." Mary Jo came back to life. "There's six or eight farmers in the church. They'd like to get a prayer."

"No way," Mac said, glancing at his watch, "I've got *airtime*, Mary Jo, I can't do farmers right now. I'll send over Steve."

"They don't want Steve, they want you."

"Steve'll have to do. Steve does agriculture fine."

"This big guy with a limp? He says tell you Arnie Simms."

Simms rang a bell. The name recalled baskets of freshly picked corn, tomatoes big as baby heads.

"Okay," Mac said, "I better handle this myself. Tell Steve to do the weather. Tell him *not* to do the news. Tell him not to touch my tapes. You and I could have dinner if you like."

"I guess not tonight."

"I'll consider that a maybe, Mary Jo."

Mary Jo seemed unaware. He watched her walk away. There was always a slight imperfection to her dress. Today she had a T-shirt inside out, Mickey's name from right to left. Mac watched her legs, watched her ankles, watched the soles of her feet. The soft little pads were brown with dirt, the arches untouched and white as snow. A tall and skinny girl makes indolence enchanting, Mac thought, makes neglect a charming air. Lazy eyes seem to imitate desire. Which doesn't really matter, if the girl doesn't care.

The church was small, made of native Texas stone. The stones were from a former local bank. They revealed ancient creatures, frozen in a Paleozoic sea. Mac came in the back door, brushed back his hair and slipped into a robe. Arnie Simms was in the front pew. His boys sat behind him, big hands resting on faded denim knees.

"Brother Simms," Mac said, grasping a hand tough as alligator hide, "it's a pleasure to see you again."

"We need rain," said Simms. "I got stock full of worms. Hoppers have near eat me out. Palo Pinto County's blowed away. That land of mine's dry as snake shit."

"Well, it hasn't been a real wet year," Mac agreed.

"Looks to me like the Lord could spare some rain. He can get all he wants, there's places not usin' it at all."

"God knows your needs, Brother," said Mac.

"Knowing and doing ain't the same, friend."

"Actually it is," Mac said, wisdom Simms didn't seem to hear.

"It might be there's something else." Simms nodded over his shoulder. "My middle boy took a Stephens County wife. A Breckenridge girl with red hair. That woman knows a lot about frogs. I figure she might've cursed the soil."

"The church doesn't hold with curses, Brother Simms. I think you know better than that."

Simms muttered something to himself. Mac looked at the four young men slouched in the second row. Pear-shaped bodies like their father, vaguely asymmetric heads. Each a year apart, each a little stranger than the next, a chart of evolutionary blight. The Breckenridge girl who liked frogs couldn't hurt. Forty-nine miles didn't seem too far to start a new genetic pool.

"I brought some seed along," said Simms, "got 'em right here." He reached beneath the pew and set a sack in front of Mac.

"My thinking is, you can bless this bunch, I'll take it back and mix it with the rest." He showed Mac a sly wink. "The good seeds'll spread the word, and they'll root out evil from the land. What you think of that?"

Mac glanced at his watch. "That just might do it, Brother Simms, sounds good to me."

He held up a hand. "You all got to be quiet, okay?" Simms and his boys bowed their heads. Mac placed his hands on the sack and closed his eyes.

"Sanctus per diem . . . Modus operandi . . . dum-de-dum-dum . . ."

Mac cleared his throat. Simms raised his head and looked relieved. "We sure are grateful, Father Mac. You like squash and lima beans?"

"I like 'em just fine."

"I got a basket outside. Say, we listen to you all the time. The wife can't sleep she don't hear a Ted Weems song. Shit, that woman'd whistle 'Heartaches' all night."

"You need any batteries, Brother Simms, Sister Leah'll fix you up. Reasonable prices, any size you want."

"Could you play a little Hank Williams sometime? 'Jesus Remembered Me'? 'I Saw the Light'?"

"'Lost on the River,'" Mac said. "'Weary Blues for Waitin.'" "Your Cheatin' Heart." You got it, Brother Simms."

"Hallelujah," Simms said . . .

Mac didn't bother with the robe. He hiked it to his knees and ran quickly up the path. Gunpowder and mesquite were in the air. Evening grackles in the trees. He thought about squash. Maybe he could trade it off in

town. Good brandy might entice Mary Jo. There was still a full bottle at the house. He was saving it for something, and wasn't sure what.

At the station, he was met with funereal assault. Bach shook the cinderblock walls. *Tocata and Fugue*. A big Kraut organ gone berserk. Mac clapped his hands to his ears and burst in on Brother Steve.

"Hi, Father Mac." Steve tried a grin that didn't work.

"Don't you *ever* do organs on my station again. Not ever, boy!"

Steve colored. "I just thought—"

"It is supper time out there, Steve. Folks are trying to eat. They don't want a dirge, they want to hear something nice."

Mac picked up a stack of tapes. A Mozart requiem, Gregorian chants.

"Lord God, you got some farmer up in Jacksboro sitting down to fresh peach pie. He wants to hear a song, something with a gentle beat, you knock him right out of his chair. You got your program sheet, you got your spots. That's all you have to do, Brother Steve."

Steve pretended to fiddle with his dials. Mac could see wheels turning in his head. A devastating answer, a cutting retort that would slice Mac off at the knees.

"I—got stuff to do," Steve said. His long limbs tangled in the chair. "Over at the church. I promised Sister Leah. Your tapes are okay, all ready to go."

"I appreciate that," Mac said. "No offense, Brother, but you need to get a handle on religious radio. You might ought to pray over that."

"I—will, Father Mac, I'll sure do that."

Steve bobbed about like a bird, found the door and stumbled out. Mac shook his head. Steve would try. But next time or time after that, the same thing would happen again. Steve would try to follow the sheet, and start humming Hayden in his head. Arnie Simms would be waiting for the Ink Spots to go with his after-dinner snort—Brother Steve would hit him with *Dicit Dominus* and scare him half to death.

Mac had found Steve at the hardware store. He knew where everything was, he kept all the nails just right. Mac knew he should have seen it right off. The boy identified completely with the job. He had no other life at all. As soon as Mac hired him, he put all thought of nails aside. Shaved his head clean, and talked about the Essene life. He seemed to have a thing for St. Jerome.

Mac sighed and started lining up his tapes. He could put up with Steve, or send him back to the hardware game. There was little you could do with a boy who liked to work, and couldn't think of anything else.

Mac imagined his listeners, spread across the flat, open counties of North Texas in a hundred small towns, in farmhouses ready for the night, the family gathered round the warm amber light of a battered radio; he saw them walking back through the late evening woods, shadows stretched long across their way, earphones ready for the Father Mac Show. Wise County, Parker, Erath, and Cooke. Grayson and Montague and Young. Even up in Oklahoma, across the Red River into Lone Grove, Archer, Tishomingo, and Durant, listeners everywhere, recovering from Brother Steve's sonic attack, ready for some sweet radio.

They were all out there, people left over from the Godawful War, people who'd made it through the times after that. People who didn't have much, people who were damned and determined to hold on tight to what they had.

Mac segued nicely into Glenn Miller's "Moonlight Cocktail," his own familiar theme. He leaned in close, nearly tasting the mike, flipped a switch and saw the light go cherry red.

"Evening out there everybody, it's Saturday gettin' on into night. You got Father Mac on the line, and it's easy listening time. Coming right at you from the studios of Radio Station Saint John, the voice of Mineral Wells, Texas, the church on the hill with the tower on top.

"Say, whenever you're in town be sure and say hello to my good buddy Karl T. LaGrange at Karl's Katz 'n Dogs. Karl's got a brand new bunch of spaniel pups, come by and pick up one you like. And, Karl's *always* got the fattest cats in town. You thinkin' steak, got a back-yard burger in mind? Pardner, you're thinkin' Karl's Katz 'n Dogs.

"Hey, how about this hot spell we got ourselves into, friends? Makes *me* want to run right over to Hal's Bar and Ready-to-Wear. Treat yourself to a cold one, try on a shirt while you're there. Any shade you like, long as you're partial to blue. That's Hal's Bar and Ready-to-Wear, next to Market Square.

"A special hello to all you raiders in town. Before you go—and hey, we're looking forward to *that*—stop by and stock up at Eddie's Guns and Ammo. If it's weapons you're after, Eddie's got 'em all.

"All right now, Brothers and Sisters, before we get into some goldies and oldies, I want to tell you we've got a *week* of fun and drama coming your way on Saint John Radio. For all you ladies out there, you don't want to miss your favorites—*Lorenzo Jones*, *John's Other Wife*, *The Guiding Light*, and Sister Leah's favorite, *The Romance of Helen Trent*. Kids, you'll want to be right here every afternoon with ol' *Tom Mix*, *Red Ryder*, *Captain Marvel* and, hey—*The Greeeeen Hornet!* After those lousy crooks, Kato! Thrills and chills on the way."

Mac leaned in close to the mike, his voice down low. "Friends, I've been saving this for last. We've got him back again, another hour of *The Jack Benny Show*. This week, the old skinflint is down in the vault where he keeps all his money locked up. He gets in a *whole* lot of trouble, and Rochester has to—I won't spoil it for you, okay? Don't miss this one, it's all the hi-jinks you can handle, and clean family fun.

"Right now, it's back to easy listening time with Johnny Desmond singing 'This Can't Be Love' . . . and hey, you *know* it can't be because it *feels* so well . . ."

Mac leaned back to listen. The last pale fragment of the day began to fade and fall away. Seven green lizards were clinging to the window outside. Their bellies were white as tropic sand. Tiny splayed pads pressed hard against the glass. Their red throats throbbed, keeping perfect time. They couldn't hear the beat, but they could feel it in their tiny lizard souls. They dozed in the sun, made lizard love in their cinderblock holes, and came out when Mac began to play. They had a feel for swing. They liked Shep Fields, and they liked Ted Weems. Artie Shaw was God, and he'd lift them up to reptile heaven one day . . .

* * *

The night pressed hot and heavy on the town, but it was cooler on the hill. A high breeze filtered through the trees and made it hard for gnats to fly. Mac put a steak on the grill, added one more and didn't tell himself why. He cooked Arnie Simms' lima beans. Fried an onion in a little hot sauce. Found the brandy, hidden in his socks. Thought about Duke and Les Brown, decided on Jimmy Dorsey instead.

In the bedroom he found a clean shirt, and kicked dirty clothes beneath the chair. "So Rare" began to drift through the house. Marmalade sax filled the night. Mac checked on the steaks. Walked in the parlor, saw candles on the table, saw one more plate than he'd need to eat alone. He had set a voodoo trap for Mary Jo. His needs would lure her in. She would wear something summery and white.

He felt like a fool. The scene was perfect for romance, way overdone for self abuse. Mary Jo had said no. He'd said maybe, but that wouldn't make it so. He took a glass of brandy to the couch. There's no harm in fantasy, obsession helps you make it through the night. Still, Mac decided, it might be time to make repairs inside your head.

There were several nice girls in town. Willing, and adept at erotic enterprise. He thought about them one at a time. Mary Jo wouldn't go away. Reality refused to take a stand.

Mac got up and changed the tape. Benny Goodman shook the windows with "Bugle Call Rag." He thought about music for his Monday night show. Maybe a whole Stan Kenton parade. "Peanut Vendor" and "September Song." Move into "Artistry in Rhythm," slide into "Laura" and "Tampico." Would they march on the station, would they stone him if he did?

Someone knocked, and Mac spilled brandy down his shirt. Rational thought, about to take hold, gave up without a fight. Go slow, put her at ease. Show her he understood her needs. "String of Pearls," "I'm Getting Sentimental Over You."

He opened the door, and there was Sister Leah.

"Well, hi there. Hello." Mac put on a smile, rewound the story in his head. "Say, how in the world are you, Sister Leah?"

"I know it's late, Father Mac. It's after dark and I ought to be in bed. I hope I'm not disturbing you, Lord, I guess I am."

"No, no, I wasn't doing anything at all." Leah looked as if she might turn and flee. Mac backed away, blocking her view of the table set for two.

"Have a seat," he said, "how about a cup of tea?"

"Listen, don't you go to any trouble, Father Mac, don't go out of your way for me."

"No trouble, no trouble at all."

Mac quickly slid the extra tableware out of sight, hurried to the kitchen and put a kettle of water on. Returned to Sister Leah.

"I guess you think it's kinda odd, me up and wandering about."

"Sleep eludes us all sometimes," said Mac.

"You didn't have to do that, you didn't have to make tea."

"Now you take it easy, don't you worry about the tea."

Leah showed distress, uncertainty, and doubt. The emotions were familiar, she wore them all the time. Possibly dimension was the cause. Not

so you'd notice, but Leah felt extra pounds was a cross she had to bear, and reminded somebody every day. She was still quite young, barely sixteen. Nice blue eyes and no self regard at all. If Leah started liking herself, the baby fat would go away.

"I'm real embarrassed," Sister Leah said, twisting her fingers in her lap. "I don't know what to say."

"You don't have to say a thing," Mac said. "Is everything all right in your work, are you happy here, Leah?"

Leah looked alarmed. "Oh, now, it's nothin' like that. I got the only peace here I ever had. I grew up in trouble and abuse. My folks were unkind. Slavers took me off when I was six. They sold me in Wichita Falls. I was forced to eat snake till I was nine. I've seen all the pangs of life I care to, Father Mac. I wouldn't be anywhere but here."

"Yes . . . of course." Mac thought they were getting to the core. Leah had something to say, and didn't know how to let it out.

The tea seemed to help. He put on some Nat King Cole and turned the volume low.

"I just love that music, Father Mac. It sounds like a river somewhere." She hummed a little off key. "Me and Mary Jo, we'll lie there and listen and fall right asleep. A body can't help drifting off."

"Well, that's good," Mac said. He felt a little flutter in his heart, tried not to think of Mary Jo in the context of *bed*, or, worse still, *bed and sleeping wear*.

"'Course, I can't sleep at *all* till you put something funny on at night. I laugh till I 'bout start to cry. *Amos and Andy*, *Fred Allen* and *Baby Snooks*. Jack Benny, though, he's the best of all. I swear . . . I guess I'm like you, Father Mac."

Mac brightened at that. "Really? Is that so?"

"Lord, yes. That ol' Maxwell car. And Rochester's always tryin' to get a raise."

"Don Wilson, Dennis Day," Mac said.

"Jack thinks he can play the violin."

"Butterfly McQueen!"

"Phil Harris and Alice Faye!"

"I guess I didn't know there was anyone else who felt the same," Mac said.

"Oh, there sure is, Father Mac, I'm here to tell you that." Leah paused and looked at her hands. "Sometimes—not to anybody else, you understand—sometimes just to myself, I think of the church as St. Jack." She glanced up quickly at Mac. "I don't mean any disrespect, I want to be clear about that."

Mac felt warm all over, partly from the brandy, a lot from Sister Leah.

"I know it's late for supper," he said, "but I'd be pleased if you'd join me for a bite . . ."

Leah leaned back and closed her eyes, close to a state of final bliss. She'd barely touched the lima beans, but the steak had quickly disappeared, sizzle, grease and all.

"God love you, Father Mac. I haven't tasted horse since I was ten. I don't *remember* a meal good as that."

"I'm glad you liked it," Mac said, "it's a special treat for me as well."

"I don't guess there's a meat any better, none that I recall—" Leah drew in a breath. Elation turned quickly to alarm. "Father Mac, I know you wouldn't do nothin' wrong . . ."

"It's legal," Mac assured her with a grin. "Prime Appaloosa. Certified lame. Pleasure without the penance, Sister Leah. Have a little brandy with that, make the meal complete."

"Oh, now, I couldn't do that."

"Sure you could." Mac filled her glass, and another for himself. "You're dining out with your spiritual guide, as it were, and he says brandy's just fine."

It wasn't quite true about the horse, Mac knew, but not false enough to make a lie. They weren't that scarce anymore, but butchering was still against the law. Karl LaGrange, at Karl's Katz 'n Dogs, knew a man who could sense somehow when a horse was about to break a leg. Mac didn't know how, and didn't ask. The church couldn't cure the world's ills. Now and then, folks were bound to sin. He knew about the lame horse trade. Who was pushing nicotine, who was running pickled mice from Mexico. He knew what Hal put in his gin.

He felt the need to understand his flock. So he cut a few minor deals himself. Nothing that he felt might offend. He wouldn't smuggle chocolate, wouldn't deal in bogus hats. He did what he thought he ought to do. He knew he wasn't perfect, but no one could say that he held himself apart, that he wouldn't lend a hand.

Maybe you're baking a birthday cake, or cooking up a tart. Even if you don't go to church, Father Mac can help. He'll get you a kilo of pure cane sugar, and he'll never gouge you on the price.

Brandy, Mac decided, wasn't such a good idea. It was fairly clear Leah had never touched drink of any sort. Now, she'd downed a whole Pluto glass, maybe three or four. She was sliding off the couch, one eye shut, one roaming free at will.

"Just take it easy," Mac said. "We'll get you up and get a little air."

Leah didn't answer. Mac propped her up and helped her out the door. She muttered something he couldn't hear.

"You're going to be all right," Mac said, "you're going to be fine."

"Oh Lord, we ate that horsey, Father Mac!"

"That's okay, that horsey didn't mind."

"He coulda been rompin' in a field." Tears welled up in her eyes. "I bet he liked to run and play."

"Leah, just forget about the horse."

"I been havin' bad dreams, Father Mac. I feel I'm tangled in sin, I ain't fit to be a nun."

"I don't want to hear talk like that, you're as fit as you can be. Put one foot before the other, now, we're almost there."

"God help me," Leah moaned, "Satan's got me by the foot, I been havin' dreams of TV!"

Mac looked at her. "Leah, you can't be sinning a lot. You haven't ever seen TV. I'm twice as old as you, and I don't recall a thing."

"I can see it in my head," Leah said, sniffing in her sleeve. "I can see folks kissin', shooting one another, I can see a game show."

"You just think you can, Leah. You're not seeing anything at all."

Mac didn't care for this. Some old fart had been talking to her, putting ideas in her head. That's all I need, he thought, a visionary nun.

It seemed half the night before he got her up the hill and to her door. Leah went totally limp. He felt something give in his back, something he would likely need again. Leah giggled to herself, humming the theme from the *Jack Benny Show*. He prayed Mary Jo wouldn't suddenly appear.

"We're here," Mac said quietly, "think you can make it by yourself?"

"Da-da-da-de-dum, de-dum, de-da-da-da-deeee . . ."

"Fine. You get a good night's sleep."

Leah opened one eye. "Pray for me, Father Mac."

"*Semper Fidelis. Cogito, ergo*, put it in the sack, Sister Leah . . ."

Everyone told him the Sunday service went well. He tried to remember what he'd said. Sin and redemption rang a bell. It's hard to hold a thought when your eyes are solid lead, when your head's a hollow tree.

After he steered Leah home he went back and tried to sleep. It didn't work at all. He found a fifth of Carolina gin Hal had given him for free. It packed a real punch, and left the aftertaste of eels. Events of the evening had left him out of sorts. He felt a sense of guilt. It was wrong to get teenage nuns snookered up to the gills. This was not a priestly thing to do.

He tried to read the faces in the crowd. See if he was making any sense. More than half the seats were filled; people got religion when marauders came to town.

He couldn't look at Mary Jo. He spotted Sister Leah. She looked beatific, or maybe in a trance. It was possible she didn't recall the night at all. Amen to that, he said, and brought the sermon to an end. Raised his hands and blessed the crowd, thought about what to have for lunch.

Karl LaGrange and Hal and Mayor Will were waiting on the steps.

"Nice sermon," Karl said. "I like 'em when they aren't too long."

"Me too," Mac said.

"Father Mac," said Mayor Will, "I think we better talk."

"Raiders," said Hal, before Mac could ask why.

"They're talking up pillage and rape," said Will. "Sacking all the stores, burning down the town. Unlawful acts of every sort."

Mac shook his head. "Your outlaw types are going to talk like that. They get in town, they like to blow off a little steam."

"This bunch is different," Hal said. "These boys have got a bad attitude. They don't much care for volleyball. Some of 'em order funny drinks."

"Flat out mean," Karl said.

Mac considered all this. Mayor Will ran Will's Ice House and Hit Plays. He was slightly high strung and off key. He was fond of colored scarves. Hal and Karl, now, were sound as good brick and not inclined to false alarms.

"Who's running this show," Mac said, "you talk to him?"

"Doesn't *want* to talk," said Will. He glanced at the other two. "Says he wants to talk to you."

Mac was surprised. "Why me?"

"Ask him."

"He wants to see you," Karl said. "Right now is when he said."

"Well I don't want to see him. It's Sunday afternoon. I got religious stuff to do, I haven't even had lunch."

Will looked at his watch and sighed. "It's 12:45. What this guy says is he'll come up and get you, you don't come down by one."

Mac was appalled. "He wouldn't do that. This is a radio station and a church."

"I don't think he cares," Karl said. "That's what I'm reading, from the way the fella acts."

Mac muttered to himself. He was plainly irritated. Hal's thistle brandy was still working in his head. "All right, you tell this road pirate I'm coming. Tell him I'll be there at one or maybe not. Where's he hanging out?"

"Over near Hubbard and Oak," Hal said. "Won't let us get anywhere near."

"We're supposed to play softball at four," Will said. "I don't see how we're going to do that."

Mac stalked back into the church. He was angry, completely out of sorts. He didn't like raiders at all. Your burglar or your footpad, your average common thief, took a little pride in his craft. Every freebooter he'd known was devoid of style or class. They were prone to deceit, and had no taste in hats.

Mary Jo was sweeping up. Orange peels and nut shells and hard heels of bread. Mac wished people didn't feel compelled to bring a snack.

Brother Steve met him halfway up the aisle. "You going down there, Father Mac? You goin' to talk to this guy?"

Steve looked gaunt and full of zeal. John the Baptist in Mexican tennis shoes.

"What do you know about that, you listen at the door?"

"Shoot, everybody knows, can I go too?"

"No, you can't."

"Why not?"

"Mary Jo, you got a clean nun suit?"

"Huh? What's the matter with this?" Mary Jo leaned on her broom. Soot, dust, possibly scrambled eggs, marred her shabby dress. Mac thought she looked vaguely erotic, lazy as a snake.

"We're going into town," he told her. "You want to comb or anything, hurry up."

Steve looked disturbed. "Well, why is it her and not me, I'd like to know that."

"You want something to do? Go paint. You like to paint a lot. Paint the radio tower. Anything but blue."

Steve looked aghast. "I'm n-not going up there, Father Mac!"

"You are if you keep plaguing me."

Steve scurried off and managed to disappear.

"What are we doing in town?" said Mary Jo.

"I'm going to meet this terror of the plains. I'm taking you, because I greatly admire your taste in clothes."

"There's nothing wrong with my clothes."

"They do not reflect the dignity of the church."

"Yeah, right," said Sister Mary Jo.

They walked down the rough dirt road that wound through abandoned houses and a clutter of mobile homes. The road led into Sixteenth, a street still partially intact, paved here and there where grass and second growth hadn't pushed up through the cracks. The street slanted steeply toward the town. Mac could see the pockmarked ruin of the Baker Hotel, and other lesser sights.

To the east, the brickyard, the cemetery, and useless railroad tracks, the road that stretched to Parker County and beyond, where Fort Worth and Dallas used to be.

"I'd like to know why I'm going into town," said Mary Jo. "I'd sure like to hear about that."

"I don't want you sweeping out the church," Mac said. "You tend to aggravate the dust."

"I guess I already know why."

"Fine. Then you don't have to ask."

Mac decided it was better not to talk. Talk didn't work with Mary Jo. They were nearly into town, and he could smell the fresh rubble of yesterday's fight, and maybe something worse. Mary Jo stopped to watch a hawk. He admired the way the sun caught her hair. You couldn't name a color like that, it was something simply there.

Mary Jo turned too soon, before Mac could look away. "Listen, don't do that, okay?"

"Do what?"

Mary Jo rolled her eyes. "I told you last night I wasn't coming up to eat. I think I said it real clear."

"I suppose you did. Look, I'm sorry. I know you don't care for me a lot."

"Now I never said that. When did you hear me say that?"

She gave him a curious look. Didn't know what to make of it, wasn't sure he cared to try.

"Don't you ever give Leah strong drink," said Mary Jo. "I won't put up with that."

"That was a mistake."

"I'll say it was. And, hey—you didn't say we were going to have horse. You never said a thing about that."

Mac turned west on Hubbard, east of the Baker Hotel. There was clearly considerable debris. Mortar rounds had exploded in the streets and demolished vacant stores. The raiders had used a lot of rounds before they found the hotel. Mac wondered if it might be prudent to bring the structure down. Blow it up and cart it off. It seemed to attract a bad crowd.

The faint smell that had reached him up the hill was a sickening presence now. Mary Jo looked at Mac with alarm and clapped a hand across her nose. Mac had an idea what lay ahead. He was sorry now that Mary Jo was there. Will was right. These weren't ordinary raiders at all.

He considered turning back, but there was no time for that. Walking slowly, he guided Mary Jo across the street. Half a block more and the source of the smell was stark and clear.

"Oh Lord," said Mary Jo.

"Don't look," said Mac.

"Thanks a lot for bringin' me along. I wish you had a thing for Steve."

"Mary Jo, I didn't figure on this."

"I think I gotta throw up."

"Don't. If you do we'll have to stop."

He tried not to look at the sight, but horror fascinates the eye, draws it and holds it there in fear. The Choctaws were strung up in a row, from Fourth past the Baker down to Oak. They were naked and devoid of private parts. Tattoos hadn't helped their cause at all.

Now Mac could see raiders up the street. A patchwork of red—red socks and red shirts with no sleeves. Baggy red pants and red athletic shoes. Hal was surely right. This bunch had a poor attitude. And bad taste on top of that.

He didn't mean to look across the street again, something simply caught his eye. Vision said a dead Indian, but his heart found a too familiar face. An awful wave of fear gripped his chest. An instant before he'd felt impersonal regret, sorrow at the useless deaths of men he didn't know. Now, he was filled with a different kind of anger, another brand of fear. He had shared the tail end of many long days with a man who was hanging from a pole, and to Mac that wasn't right. It wasn't right at all . . .

Mac picked out the head honcho at once. A good foot taller than his men, his hat added extra height to that. A wide-brim straw dyed red, a broken red feather on the top. A red leather suit the worse for wear, red shower shoes. Mac didn't fail to miss the big Colt pistol in his belt.

The raiders moved apart as the big man worked his way through, offered Mac a lopsided grin and a big dirty paw.

"Hi there," he said, "I bet you're Father Mac. I'm Bob the Destroyer, I hope you'll call me Bob."

"Welcome to Mineral Wells," Mac said.

"Now that's good, that's what I like to hear." Bob laughed, and cast an appraising eye on Mary Jo. "I am sure looking forward to meeting you. You'd be a stunner in red. I feel we can get to be close."

"She's leaving," Mac said. "Right now."

"Yeah? Who says?" Bob's winning smile began to fade.

"You want to talk to me, she goes."

"I think I'll put a hole in your head."

"That's going to hamper talk." Mac kept his eyes on Bob. "Go on down to Market, Mary Jo. I think they've got peaches in today. You wait for me there."

Mary Jo was scared. Mac was proud of her, she didn't let it show.

"Go on now. I'll be along in a while."

Mary Jo nodded and started up Oak. There were raiders all about. They watched her go and looked at Bob. Bob looked unconcerned, as if he didn't care.

"I thought you and me could get along," he told Mac. "I might've been wrong."

"We can get along fine."

"I guess we ought to have a drink. There's no use talking in the sun."

Bob didn't wait for an answer. He walked off into shade. Mac watched him walk. He wasn't just tall. He looked as if he might have been stretched. His arms and his legs, every feature on his face, seemed longer than they should.

The raiders had dragged up a collection of chairs, mattresses, and beds, other odds and ends, and set them up beneath the awning of a vacant tire store. Bob found a bottle and glasses, and gestured Mac to sit.

"I hope you like Chinese rum," Bob said, filling Mac's glass. "I got a taste for it on a venture down south."

"You need to drop over to Hal's."

"The boys tell me it's a real nice place. You ever seen a Chink? They're peculiar as can be. Saw a bunch in New Orleans. They like to drink rum. Take to rollerskatin' a lot. They've settled in down there. When the war got done, their grandpas didn't go home. They're still tryin' to figure who won."

"So am I," Mac said. "Listen, how long you fellas plan to stay?"

"I need to burn the town. Shouldn't take a lot of time."

"You don't want to do that."

"Why not?"

"It seems real excessive to me."

Bob looked pained. "You think I'm on a summer tour? We're in the vandal trade, friend. We got to loot and terrorize."

"I understand you do. I'm not telling you how to run your business, but there's things you ought to know before all this gets out of hand."

Mac wasn't certain just how to handle this. Bob seemed reasonably sane, and had a little social grace. Still, Mac had seen marauder types before. They were all out to lunch. They had to look bad, or someone else would take their place.

"The thing is," he said, "we've got a pretty good life going here. We're not your little frogshit hamlet by the road. We've got real stores, we've got power from the dam. We got local hit plays and a volunteer band. What we are, Bob, is the county's heart and soul, and the trade comes in from all around. You burn us down, we'll be gone when you come through again. I'd like you to think about that."

"Here's what we can do. We'll work out a deal I think you'll like. We get a sort of tribute package together, the same kind of stuff you'd loot yourself. Veggies and fruit, lots of fresh meat, local arts and crafts. We'll toss in some whiskey, better than the crap you're drinking now. This kind of deal, it saves you and us trouble too. And the best part is, nobody gets hurt, everybody's happy, everybody's fine. I'll tell you what, we've had spoilers here before, and they've all been satisfied."

"What I think I'll do first," Bob said, "is drop a few rounds on your church. Violate some nuns. Torch that station up there, knock you off the air."

Mac let out a breath. "Bob, I got to take offense at that. It's not the kind of talk I like to hear."

"Don't take everything personal, Mac. You want another drink?"

"I see I'm not getting through. You're not looking at the issues, you're not facing facts. Raising cain up the hill, now that'd be a real smart move. You want to piss everybody off for a hundred miles around, that's what you ought to do. Shoot, I figured we could work this out. If you've got no respect for God and radio, I don't see how we can talk."

Bob laughed aloud. "Man, you're the best I ever heard. You make that shit up yourself? What's that little honey's name, Mary Jane?"

"Sister Mary Jo. I'll ask you not to mention her again. Okay, I didn't want to bring this up, but I see it's time for plain talk. No offense, Bob, but the folks in this town aren't accustomed to pillage and assault. They're not going to sit still, they're going to fight back. We'll lose a lot of people and I hate to see that. But you're going to lose a bunch, too."

Bob closed his eyes. Bob looked tired. "Is that it? Are you through?" He finished off his drink and blinked at Mac. "You and me are about done, friend. I'm glad we could sit and share a drink. I've had all the talk I can take without nailing your ass to a tree. You tell those citizens of yours that Bob the Destroyer's got a heart. That's not a good trait in illicit enterprise, but hey, that's how I am. You tell 'em they don't shoot back, I'll do the best I can. If they do, I will flat bring ruin and urination on your town. You got that clear, you with me, Father Mac?"

"Clear enough," Mac said. "And I appreciate you being frank. I'll pass the word along."

Mac stood. Bob shook his hand, and walked him to the corner up Oak.

"Thanks for coming," Bob said. "I know it's Sunday afternoon."

"Well, I didn't have a lot to do."

"Oh, listen," Bob said, started off and stopped, turned back to Mac. "We were having such fun I damn near forgot. We had a little accident. My brother, that's Fred, got to celebrating and lost a foot. I'd be grateful if you'd go and get the doc."

Mac felt a surge of raw anger, so fiercely intent, that he wondered if it really came from him.

"There he is," he said, "right there." His hand shook as he pointed toward the Baker Hotel. "Fourth pole down. That's the man you want to see, he'll fix your brother up fine."

Bob looked concerned. "All those boys look Injun to me. You sure you got it right?"

"Yeah, I got it right. The man was a good friend of mine. His name was Juarez. *Doctor Juarez.*"

"Shit. I'd like to apologize for that."

"Well, it's a natural mistake. The man was kind of *dark.*"

"You're upset about this."

"You're damn right I am."

"You didn't mention this before."

"Well see, I got to kiss up to you. You're the big scare, the big cheese in town."

"There's that," Bob said. He gazed down the street. "He shouldn't have been where he was. My boys are under stress. We been after those redskins a week. They're intent on stealing meat. You know they're into carnal art?"

"I expect Doc was helping someone," Mac said. "He had a bad habit of that."

Mac wanted very much to go back up the hill and sit beneath the big tree, think about poker games and whiskey bouts at Hal's. Think about Diego Juarez. How Diego liked to drink too much, how he liked to dance and cry. Crying and dancing were two things Diego liked best. He liked to do them both at once, and it was great to watch him try.

Mac looked at Bob. There was something there he'd missed before. Thinking about Diego seemed to help, seemed to make everything clear.

"That's what this is all about," Mac told him. "You son of a bitch, you don't want to talk, you don't want to deal. This is all about a *foot*. For God's sake, you could've asked anyone in town to bring the Doc. You didn't need me!"

"No way," Bob said. "They take Fred off somewhere and that's that. The town runs the show and not me. Got me over a barrel's what they got. Doctors and priests, they gotta take an oath. That stump looks kinda infected to me. We wrapped it up some, but he needs more than that."

"Then I guess that's what you ought to do. Something more than that."

Bob looked appalled. "You think *I'm* going to risk the boy's health? My own brother? Listen, you're out there stirring fear in everyone's heart, you don't make a lot of friends. Any one of those bastards of mine, they'd like to take me out. Fred's all I got."

"That's it," Bob stared right at Mac. "You take care of Fred's foot. Fix him up, get him on the mend."

"Stop it," Mac said. "I'm not buying this."

"You got a church, you got some nuns. You got secret healing arts. Pray, do a chant. Do whatever you got to do." Bob paused. "Just get Fred another foot. I want Fred to have a foot again."

"And how am I supposed to do that?"

"The Lord works in wondrous ways. I read about that. Bradley, Bill—" Bob turned to yell up the street. "Get Fred up to the church. Father Mac here'll show you the way."

"Huh-unh, this is not a good idea," Mac said. "I know what you're doing and I won't put up with this."

Bob showed Mac a broad smile. "You fix my brother up. You get the boy a foot. Then you and me, we'll talk about pillage and rape. Burning shit down. Good folks lyin' in the streets. That, and me thinking how I might show my gratitude. Say, we caught your show Friday afternoon. Got you clear down to Morgan Hill. What you think about that?"

"We try to reach out," Mac said.

"You've got a good ear for moody brass, but I'd like to hear somethin' isn't a hundred years old that's got *moon* in every line. Shoot, Rock and Soul is where it's at. Karen Carpenter. Barry Manilow. I got a John Denver tape doing 'Rocky Mountain High.' That boy flat gives me the chills."

"That's the kind of shit brought this country to its knees," Mac said. "Bob, you listen serious to me. I can't grow your brother a new foot. I'm just the local priest."

Bob grinned. "By God, Mac, I sure think you better try . . ."

There were times when Mac wished he'd made a left turn instead of a right, and given Oklahoma a try, or maybe even Arkansas. Still, there weren't any *good* places to go back then, and damn few now. If you

thought about it much, which he didn't like to do, there were few places anywhere it was safe to hole up and light a fire. There were scattered farm communities, and small towns coming back and holding on, but no place was really safe, one day to the next.

Fate, Mac figured, either picked you up or smacked you down.

A good example happened just south of Fort Worth Crater, where the fickle finger decided to give him a break. A band of loonies had been on his tail all day and half the night. Finally, they cornered him in a ruined mall. Mac, his heart in his throat, was sure it was the end. And, likely it was—but at that moment the floor gave way, and Mac found himself pawing at empty air.

When he hit, he hit hard. As they say, everything went black. When he woke, a dull hint of morning slanted down from the hole where he'd fallen through the night before. Mac listened. Apparently, the loonies were nowhere about. Looking around, he saw what had happened. He had dropped through one level of the mall to the next. As light began to eat the shadows away, he saw he was in the ruins of some store. What kind of store, he couldn't guess. Coming to his feet, he took a few steps forward—then stopped. Whatever they'd sold here was littered on the floor. With every step, the stuff crunched and crackled under his feet. The light was better now, and he reached down and picked up a flat slab of plastic. The label read: *Best of Spike Jones*. He tossed it away and picked up another. A man was playing a horn. Part of the label had peeled away. All that was left said: —nny Goodman. He turned the thing over. Another label told Mac he had fallen into the dark confines of

ROY BOB'S HANK WILLIAMS MEMORIAL COUNTRY WESTERN AND GOLDEN OLDIE STORE.

He had seen a CD before but never actually heard one play. Now, they were everywhere, half a foot deep. Hundreds, maybe thousands of CDs and tapes, all for the taking. *But who'd want to*, Mac asked himself. *What the hell would you do with something that wasn't good for anything anymore. . . ?*

He had found the two mules wandering loose, and managed to bring them in with moldy candy bars. The mules were so hungry they were willing to give anything a try. A week after that, he turned off the road and stumbled on Mineral Wells, Texas. A funeral was going on and he stopped for a moment in respect. The departed was Father Al, a man in his eighties who had dropped dead on the steps of his church. A man named Mayor Will came up and talked to Mac.

"You headed anywhere, stranger?" Mayor Will wanted to know.

"Not especially," Mac told him.

"Well, as you might note, we're looking for a preacher."

Mac stared. "Are you nuts? Why would I want to do that?"

"You got a nice voice, and a house goes with the job. I believe you could handle it real good."

Mac narrowed his eyes against the sun. Up on the hill beside the

church was another building, with a high metal tower above it. Mac knew what it was. He'd hunkered down in one just like it north of San Antone. It was a somewhat crumbling, abandoned radio station. Mayor Will was still talking, but Mac scarcely heard his words . . .

All the color drained from Sister Leah's face. "You can't be serious, Father Mac. I don't know nothing 'bout doctor stuff. And if you don't mind, I'll just step over there and get sick."

Mac laid a gentle hand on her shoulder. "I know you're not medically inclined, Leah. All I'm asking is you do what you can. Try to make him comfortable, clean him up a little. Get him some water, take a look at that stump. Get a new bandage on it, we'll see how it goes."

How it goes, Mac thought, is this poor bastard's going to die, real likely this afternoon, and leave me in a shitload of trouble . . .

Two of the raiders had brought Bob's brother up the hill on a litter. They gawked at the church and the radio station, and Leah and Sister Mary Jo. Mac quickly sent them back down.

Fred looked awful, and it wasn't just his foot. He was sweating all over, and his skin had turned an awful shade of gray. Moreover, like everyone of the raider persuasion, he stank like the dead. Raiders figured bathing was an unmanly act, and wouldn't even jump in a river. When their clothes rotted off, they stole some more at the next raiding stop.

"Honest, I can't do it," Leah said again. "I can't even *look* at him, Father Mac, I just can't!"

"She doesn't have to, either, and you can't make her!" Sister Mary Jo had suddenly appeared at Leah's side, her face a looming storm.

"We're religious people. We do church and prayer and sweeping up, and we don't do stumps."

Mac closed his eyes. Maybe this would all go away and he'd be back on the road again. "Okay," he said, "don't. Don't do a thing."

"What?" said Leah.

"Yeah, what?" said Mary Jo.

"What I said. Leave him there. Let him die. If he does, put something over him to keep the flies away."

He didn't wait for whatever came next. He turned away and walked down the hill. Maybe he'd think of something else, or maybe not. Whatever, he could kill a little time . . .

Mac squinted at the sun past the harsh and empty plains. No one built out here, because no one had to. There was shade in town, groves of trees in Mineral Wells and on the hillsides above. Mac knew the fact that these sun-baked flats were a miserable place to live was the reason Pablo the Deep was there. God had told Pablo this is where he wanted his chair. Not anywhere else, right here. And when Pablo was done, God would descend and rest in his chair. If God had mentioned what he'd do after that, Pablo hadn't said. It was rumored that Pablo was a certified mystic from Queens, New York, and no one questioned him about the chair.

Mac stopped for a moment to look up at the massive sight. Pablo had been at it some years before Mac came to town. Certainly, there was good

reason the project was taking so long. Pablo had to drag countless bits of dead wood down from the hills some eight miles away, then bind each piece in its proper place. It was an awesome task, but to give Pablo credit, it already rose nearly forty feet above the blistering plains. The legs were complete, and Pablo was halfway through the seat. *What if a fair-sized Texas tornado marched across the flats, which they very often did?* Mac wondered. He hoped he was somewhere else if such a disaster came around.

Pablo spotted Mac, worked his way down the scaffolding, waddled over like a great bear and squeezed Mac in his enormous arms.

"*Inglés*, it is good that you have come. There is much that needs to be told, yes? Much that the people must know. *El Dios* has words for all his children."

"I'm a preacher, Pablo. I know all about that. Right now, though—"

"Now, *Inglés*, we will pray, then we will have the talking."

Mac looked into Pablo's eyes and wondered if he was truly present, or lost on some ethereal plane.

"We will pray shortly," Mac said. "First, I have this favor." He held Pablo steady by the shoulders, keeping the mystic's eyes straight ahead. "I have a man who needs a foot. You are a master of the carving arts, of the shaping of the wood. I would ask you to make me a foot, *mi amigo*. Only a man of your genius can do this task for me. And if you would kindly do it by *tomorrow* I would be most grateful."

For a moment, Pablo looked bewildered. Then, a new light began to show in his eyes.

"This is a work for the good of *El Dios*, yes?"

"It's for *El Dios*, you, me, everyone."

"And for the very lovely Sister Mary Jo?"

Mac swallowed his irritation. God was Pablo's major obsession. Mary Jo came close after that. If he wasn't hauling sticks, he was hanging around the station, grinning at Mary Jo.

"Did I *not* explain this task is for everyone, Pablo? I am certain that I did."

"Yes, of course, *amigo*. Yes." Pablo scratched his chin, squinted into the sun, or past it, to *El Dios* himself.

"It is not an easy thing to do the carving of the foot, *Inglés*. Any foot will not do. One must match a man's soul with his stump, yes?"

"No, Pablo, there is no fuc— no time to match feet and stumps. I'm talking your plain, ordinary wooden foot. Tomorrow. *Comprende*, yes?"

Pablo seemed to get the message. "Yes, I understand your need, my friend. Tomorrow, though—"

"By noon. All right? And you need not come to the station. I'll come down here."

Pablo showed his disappointment. "I will do what I can with this thing of the foot. A man must know his limitations, *Inglés* . . ."

" . . . All right, all you good folks out there in radio land, I don't have to tell you it is *hot*, I mean brow-sweating, foot-burning hot, but don't let the

heat get you down, friends, sit back in your rockers or under the shade of that oak by the well and listen to the *cool* sounds of Stan Getz, Charley Parker, Sonny Snitt, and my all-time favorites, Dave Brubeck and old George Shearing. You want jazz, we got it, coming your way.

"First, though, I want to give you the highlights on the current band of marauders we've got right here in Mineral Wells. They're a mean-spirited bunch, bent on pillage and bad behavior of every sort. Their leader is a crude and vicious dullard named Bob the Destroyer. If you're listening down there, Bob, don't take offense. I expect you're a cruel and unlettered bully who grew up in poverty and abuse, and you can't help being what you are. Nevertheless, before you go and do something we'll all be sorry for, come on up to the church, and we'll have a cold drink and talk. Brother, it's never too late to change your ways, and take the path of righteousness.

"That's the news for now, so sit back and listen to Wes Montgomery bringing you the sweet and mellow sounds of 'The Shadow of your Smile'..."

"You doing all right, Fred? Sister Leah taking good care of you? You want some ice water or anything, just ask."

"Doing fine," said the raider, "cept for this stump which is aching some." He leaned up as best he could. "Nice place you got up here. If I was my brother, I wouldn't burn it down."

Mac backed off a pace. Fred smelled awful, an odor that came from his lifestyle, and had nothing to do with his foot. His clothes, hair, and tangled beard were crawling with vermin. Raiders took great pride in the number of small creatures they carried around.

"Bob's not going to burn anything," Mac said. "I won't tolerate it."

Fred grinned through jagged teeth. "And you're going to do what?" He winked at Mac, leered at Sister Leah.

"I won't have you showing disrespect to a nun, friend. You want to keep drinking ice water, you behave yourself."

"My brother, he's not a real nice guy. Me, I'm just trying to make a living."

"Oh, well then, why didn't you say so?" said Mac.

Fred laughed. "He isn't going to back off. Don't start thinking he is."

"I won't."

"How's that foot of mine coming? I'd like something real nice."

Mac looked pained. He shook his head, turned, and stomped off toward the station. Leah caught up and laid a hand on his arm.

"He's not a bad person, Father Mac. He's a misguided soul who's lost his way."

"He didn't have any trouble finding his way here."

"He looks bad, I know, and he's hip deep in sin, there isn't any doubt about that, but—Father Mac, when no one else is around he talks *gentle*, like a real person. There's good in him, it just can't make its way out—"

"Leah, stop it." He grabbed her shoulders, turned her around. "The *good* can't get out 'cause there isn't any there. If there was, it couldn't get past the smell. Now get your head together. And don't *talk* to the son of a bitch!"

Leah's eyes went wide. She slapped her hands over her ears and stared. Mac walked off and didn't look back. He knew that hadn't worked out real well, but why should it? Nothing else had either.

Mac found Steve sitting on the steps at the station. He tried to turn around but Steve was too quick.

"I been looking everywhere for you, Father Mac. We need to talk real bad."

"No we don't, Steve."

Steve blinked. "No, seriously, Father, I've—I've worked out a plan. I'd like you to see it."

Before Mac could stop him, Steve pulled a much-folded scrap of paper from his pocket.

"I haven't got time, Steve—"

"Look, Father Mac." He spread the paper on the steps. A green lizard gave it a curious look. "What we do, we get out the back way, down the hill past the station and the church. It'll be dark about an hour and a half. By the time anyone knows we're gone—"

Mac snatched the paper and wadded it in his fist. "Who's *we*, Steve? I guess I'm on the list, who else?"

"Well, Sister Leah and Mary Jo . . ."

"And everyone in Mineral Wells."

"Yeah, and—" Steve looked at Mac. Mac's expression told him all he needed to know. "I know that's not the Christian thing to do, Father, but there comes a time . . ."

"You're ignorant, selfish, and overwrought, Steve. I'm going to forget this ever happened." He jabbed a finger in Steve's chest. "I see you going anywhere in the dark, I will shoot you dead. You got that? It's not a Christian thing to do, but I think God would say it's okay. I expect he already knows you're a real asshole, Steve."

Mac left Steve standing. The lizard twitched its head and scuttered away.

Mac sat in his lawn chair under the trees and watched the town grow dark. The raiders were having a time, making a lot of noise, as raiders were wont to do. They had set a fire in the Baker Hotel. Nothing there would burn, but it was a good place to drink and shoot at empty bottles. The empties were the remains of the booze they'd bought or stolen from Hal's Bar & Ready-to-Wear.

Mac knew raiders never burned bars until they were ready to wander on. What they'd do was get sick on bad whiskey, rest up, and finish off the town around noon the next day.

He saw Hal coming up the hill, along with Karl from Karl's Katz 'n Dogs, got up to meet them and found them chairs. Hal had brought a bottle of Oklahoma Scotch and half a dozen cold beers.

"They're frisky," said Karl. "Not as bad as some of the others, but they'll have their way if they can."

"Mayor Will and Eddie got everyone armed. They're waiting down by the draw. We got enough firepower to take a bunch with us . . . but they got more.

"Bob the Destroyer, he's gettin' real hot about the women. Wants to know where they are. 'Course he knows we're not going to tell him."

"He'll find 'em when he puts us down," said Hal. He handed another beer to Mac. "This is going to be a bad one, Father Mac. They got too many. More'n we can hold. I figure we'll volley, move back to a second line. Keep going long as we can."

"I'll be down about dawn," said Mac.

"You don't have to, Father."

"Why not? They'll get up here when it's over down there." He paused a moment. "I'm sending Sister Leah and Sister Mary Jo down to you at dawn. Do what you can."

Hal nodded. "Any chance of getting that bastard's foot on time?"

"I doubt it. And I don't think that'd stop Bob, anyway. I could tell after 'bout a minute and a half he wasn't going for the tribute package. This one wants the town."

The three sat for a while in silence, then Hal and Karl got up and shook hands with Mac. Mac didn't bother to offer a blessing, and neither of them asked.

Mac dozed in his chair. The wind picked up and brought the stink of charred wood, gunpowder, and the none too subtle fragrance of bad breath, sour clothes, and flesh that only got wet when it rained. Mac dreamed of cherry pie, Gerry Mulligan, and Sister Mary Jo. The Mary Jo dreams were familiar. Each was a scene from past dreams, each enhanced to new and even more wondrous and unlikely moments of carnal desire, not one act sanctioned by any spiritual tract Mac had ever read before.

Just before dawn, the dreams gave way to moans, groans, gunfire, and wholesale retching from the raiders down below. Mac staggered back to his house, washed his face, changed his shirt and grabbed his ancient .44 revolver off the closet shelf. He knew, from past encounters, raiders gave no special treatment to persons of the professional persuasion: Doctors, bartenders—and especially preachers. When it all hit the fan, Bob would gun him down with all the rest.

"Father Mac?"

Mac's heart gave a little leap when he opened his door. Mary Jo was standing there, right in his face, close enough to smell the special Mary Jo mix of lavender, biscuit breath, last week's dress, sweet and dusty flesh, dark and musty hair, and all the smells that made Mac dizzy for Mary Jo lust.

"Yes, Mary Jo. Uh, how are you, and—hello Sister Leah—"

It struck him, then, that both were there at his door and they shouldn't be there at all.

"What—what are you doing? You're supposed to be down there. Hal and the guys know where to hide you."

"We don't much feel like hiding," said Mary Jo. She was chewing on a twig, unconcerned as ever, her eyes off somewhere else.

"We're nuns, Father," said Leah. "I don't think they'd do us harm."

"Uh-huh. Why not? Nuns are women, last time I looked."

"What she's saying is we need to be around to help," said Mary Jo. "Just in case somebody gets hurt."

The noise from below was growing louder by the minute. Everyone was sober down there now and ready for rape, pillage, and ruin.

Mac didn't know what to say; knew these two never listened to anything he'd said before, so why start now.

"All right, come on, the two of you. We're going down the east side of the hill. That way—"

"Father Mac?"

"What, Sister Leah?" He stopped, for the tears had begun to form small rivers down Sister Leah's face.

"Hey, what is it? What's wrong?" He looked at Mary Jo. Mary Jo looked at a tree.

"I've sinned," bawled Leah, "sinned something awful, Father Mac!"

"Right. Let's talk about it later, okay? We need to—"

"I did it with an unbeliever, Father Mac. I couldn't help myself, I just did."

Mac stared. "You what? You mean—with Fred? Not with Fred, Leah, don't tell me that."

"She did, too," said Mary Jo.

"Why, Leah? Why would you do such a thing? You're a—you're a nun."

"I'm a woman, too, Father Mac. I have been struck by passion, by the frenzy of unbridled love, by the mystery of—"

"Oh, shit!" said Mac. He started downhill without looking back, down to the roar of Bob and his raiders, down to the horde of crazed, unbathed men, struck with the frenzy of unbridled lust for blood . . .

"They're holding back, I don't know why," said Karl.

"They got to get riled up," said Hal. "It isn't no fun for 'em they don't get properly riled."

"They look riled to me," said Mac. It was a frightening thing to see, something you didn't want to face first thing in the morning, without something solid in your belly and a cup of acorn tea.

Not fifty yards away, the raiders stomped the ground, shaking the earth with their worn-out boots, waving their weapons in the air. Close behind Mac, the men of Mineral Wells formed a pitiful line, guns, knives, sharpened sticks, pitchforks, and rocks.

Rocks . . . Mac wanted to cry. In fifteen minutes, every man there was going to be dead in his tracks. This small band had stood off minor raids before, but nothing like this. Mac wondered if he hadn't tried hard enough. The tribute package nearly always worked; raiders were lazy, most of them not too hard to get along with if you gave them enough good stuff. Bob, though, Bob was something else. The son of a bitch wanted it all—booze, women, shirts, the works—and clearly intended to get it.

Mac looked at his pitiful band of defenders. He knew them, every one. A face he didn't see was Steve's. No big surprise there.

"Father Mac?"

Mac turned, stared. "Pablo? My God, what are you doing here?"

Pablo looked hurt. "The foot, *Inglés*. The thing of the foot. It was much of a *problema*, but I have done as you said, Father."

Pablo held up a foot. A really marvelous foot, a foot created with love, with genius, a foot made by a master, a foot carved with countless, intricate designs from myth, legend, and Pablo's painful memories of growing up in New York.

"It's a—a truly wonderful foot," Mac said. "I don't think I've ever seen a foot like it."

"*Por nada*, Father. It is of the greatest pleasure to me to serve the church and *El Dios* any way I can."

"Yes, fine," said Mac, turning away as Karl and Hal came up behind him. Neither spoke, but it was plain what they were about. The raiders had gone suddenly still, mumbling to themselves. They milled around, jerking this way and that, like ants stirred up with a stick.

"Shit, they're coming," said Karl, "coming right now."

"We're dead men standing up is what we are," said Hal.

"Not for damn long. 'Bout a minute and a half."

"Two, maybe, not more'n that—"

"Shut up," said Mac. He walked a few yards toward the raiders' line. Something wasn't right, he couldn't tell what. As he watched, a shiver seemed to pass through the warriors, a shiver like a cold wind out of the north. Bob the Destroyer caught Mac's eye. Mac read confusion, disorder, and dismay. The raider was clearly shaken to the core. The men around him babbled, moaned, cried out in nameless fear.

Then, as if some ghostly voice had whispered through their ranks, the horde turned as one, and, with a wail that sent shivers up Father Mac's spine, the great mass thundered off across the plain, kicking up dust in their wake. Those too slow to keep up were crushed, flattened thin as lizards, left where they lay.

"What the hell was that?" said Karl. "I got to be dreaming, boys!"

Hal laughed and slapped his hat against his knee. "Don't care what it was. That's a pretty sight to see. Father Mac, ain't this a wonderful day?"

"You think so?" Mac stared, then grabbed Hal's arm until he flinched. "Take a look at *that*." Mac pointed to the right, far east of the town. A cloud of dust appeared above the hills, broiled, whirled, until great plumes of darkness filled the sky.

"God help us," said Karl.

"You'd better ask God real good," said Mac. "We got visitors again . . ."

Mac drew a breath and held it. Out of the black cloud, figures appeared—then another, and another after that, until the great horde stretched from one end of the valley to the next. He could hear them now, the thunder of their feet against the rocky ground, the howl from a hundred warrior throats—a hundred, hell, two hundred, five—there were too many, too many to count.

"It is the end, *Inglés*." Pablo made some kind of sign with his hands. "Doom has come upon us. Somewhere this is written. I cannot remember where."

"I read that somewhere too," said Karl.

"It's in a book, I know that," Hal added.

"That's it, somewhere in a book."

Okay, Lord, what have I done? Mac thought. *One bunch of smelly bas-*

tards isn't enough? What is it, the sermons, the music, what? Just give me a clue and I'll—

Mac turned, nearly jumped out of his skin as a blood-curdling cry reached him from the hill at his back.

"Aw shoot, we're doomed," said Karl, "them devils are *behind* us, Mac!"

Mac could feel his blood rising. "Just one of the devils," he said. "What the hell you think you're doing? Get back up there, both of you, now!"

Bob the Destroyer's one-legged brother Fred leaned on Sister Leah with one arm, and waved a big stick in the other.

"I am citizen now," he shouted. "Fred help!"

"Get your ass back up the hill," Mac said, "and take that crazy nun with you."

Fred looked hurt, puzzled. Leah started to bawl. Pablo muttered under his breath, tucked the finely carved foot under his arms, and waddled up the hill toward the pair.

"This isn't good, is it? I'm about scared out of my shoes. What are you going to do, Father Mac?"

Mac was suddenly aware of a small hand trembling in his, a touch that sent an electric charge to his heart, a charge that set his stomach a-quiver, and traveled on after that.

"Mary Jo, what are you—" He tried to find his voice. "What are you doing here?" He glanced at the savage band, now so close he could almost see their faces, their weapons flashing in the sun.

It's clear you're really pissed, Lord. I dream about her touch and I've got about six minutes to tell her she's the love of my life. Nice going. I got your message fine . . .

"I don't know, Mary Jo. I'm not sure yet what I'm going to do."

Mary Jo looked up at him and smiled. As ever, she had a smudge of dirt on her cheek. He was staggered by her eyes. They had turned from muddy brown to an autumn shade of gold. She no longer seemed distant, blank, and unconcerned, indifferent to passion, a proper way to do her hair.

"I'm not real worried," Mary Jo said. "I know it'll be all right. You always come up with something."

Mac wanted to hold her, take her in his arms. "Listen, you think you could call me Mac? Leave the Father part out?"

For an instant, captured by her graceless charm, he was scarcely aware of the storm about to flatten Mineral Wells.

Mary Jo thought for a moment. "U-huh. I guess I could do that."

"Oh Lord, Mary Jo. There's a lot I'd like to say . . ."

"I'm just a nun, but I figured that out some time ago."

Mac reached out, squeezed her hands in his. "You did? By God, you sure didn't show it. You know how long I've—"

The awful sound rolled across the plain, a near visible wave that shook the ground. Mac pushed Mary Jo aside, stared at the screaming mass that rushed toward him like a deadly plague, a plague of—of great, burly men, hulking, brutish men with arms the size of oaks, men in muu-muus, minis, crinolines, and crepes. Shorts, shifts, saris, and sarongs. Scanties, panties, and thongs. Men dressed in tube tops, tank tops, teddies, and slips. Night

gowns, ball gowns, corsets, and tights. Petticoats, pinafores, and sacks. Every kind of bonnet, cap, or beret. Sandals, slippers, flip-flops, and flats.

And, as this scruffy crew grew closer and closer still, Mac knew that all of these tired, ragged, frocks, smocks, chapeaus, and shoes were even older than the war. Mac had found CDs and tapes; this bunch had stumbled on a Lord & Taylor somewhere.

As if on silent command, every chic, untidy rogue stopped in his tracks at once. One, the biggest, by far the dirtiest lout of all, stepped out of the ranks and stomped toward Father Mac. Mary Jo gave a little cry, grabbed him and held on tight. Mac didn't see Karl or Hal. He didn't turn to see if his pitiful troops were still standing strong at his back. All he saw was the giant coming at him, blotting out the sun. A tattered cocktail dress in faded blue hung off his enormous frame. A pink pillbox clung to his tangled hair. And, Mac was near certain, the fellow was wearing high-heel corrective tennis shoes.

"You," said a voice like gravel in a box, "I'm Elaine the Unfair. Get all your females up here naked at dawn. Make goddamn sure they bring all their clothes. We'll spare 'bout half of your men, and burn this town to the ground."

Mac met the man's eyes. "I'm Father Mac of the Church of Saint John. I also do a little radio. And I'm afraid you can't take our women, or slaughter our men. I will certainly not allow you to burn the town down."

The man showed prehistoric teeth. "How you goin' to stop me doing that?"

"I don't know, but I'll do my best to try. First, I want to welcome you and your marauders to Mineral Wells. Before you do anything, I would like to invite you up the hill for a drink. I have some reasonably good Oklahoma scotch and cold beer. If I'm not mistaken, Hal, over at Hal's Bar and Ready-To-Wear has, among his fine collection of magazines of the past, a stack of old *Vogues*, *Glamours*, and *Elles*. We can have a drink, talk a while, and see what comes of that."

Mac paused. It was hard to gauge the thoughts, if any, broiling in this prehistoric mind, but there was little else he could do but try.

"If I may get personal, I think you look very nice in blue. And, I want to say I feel there is a real fine woman locked up inside you, Elaine. A real fine woman just longing to set herself free from a petty, narrow-minded world. I think you'll find we all feel that way here in Mineral Wells."

For a moment, Elaine's face turned a bright, ferocious red, and his eyes nearly burned through Mac's skull. Then, for a moment, and a moment only, the deep furrows in his face seemed to disappear.

"I'll take them magazines," he said, "and that drink. I hardly ever get a chance for cold beer. But that don't change nothing, not anything at all, you hear?"

"I do," said Mac. "What I feel is, no matter what garment one lays across one's shoulders, no matter his or her choice of footwear or hat, underneath, we're all the same. I know you and your folks feel that way, and so do I. In the end, a man's got to do what a man's got to do, Elaine. I surely do understand that. Now, let's you and me get out of the sun. You got a hat, but I don't . . ." ○

CAT MATH

Addition

How many strokes
Of cheek against chair
Does it take to prove
Territorial rights?

Geometry

Is any amount of bare space
Shining at the bottom of the foodbowl
Acceptable?

And how do you prove the negative
To humans?

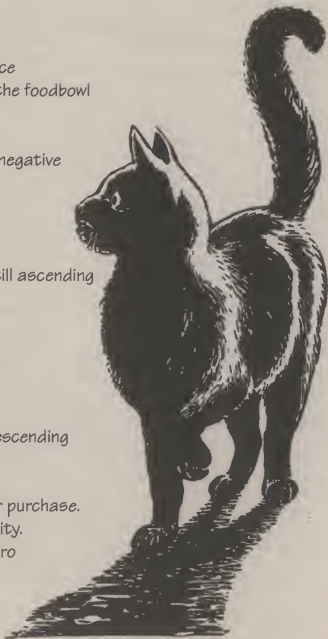
Calculus

Jump too close
And the parabola will be still ascending
Feet below the surface
Where their tangent
Should be level
Landing without lift or fall.

Jump too far,
And the parabola will be descending
Feet below the surface.

Feet shouldn't scrabble for purchase.
Cat math depends on dignity.
The derivative should be zero
Eyed before the leap
Into quadratics.

—Ruth Berman



HUNTER'S RUN

By Gardner Dozois, George R.R. Martin, & Daniel Abraham
Eos, \$25.95

ISBN: 978-0-06-137329-9

Two seasoned pros and a relative newcomer team up for a hard-edged SF novel that sizzles with the energy and inventiveness you might expect from one of the young Turks of the New Space Opera such as Alastair Reynolds. That kind of intensity is hard enough for anyone to sustain, but it's even more impressive in a three-way collaboration.

The book, some of which appeared in *Asimov's* as a self-contained novella, takes place on a world colonized mainly by Latin American contract workers, and still only partially settled. It centers on a singularly unlikable protagonist, Ramon Espejo, whom we meet as he awakens in a disoriented state. It quickly becomes clear that he is in serious trouble, having killed a man in a drunken knife fight. It is also clear that he feels no remorse for having done so.

Espejo squabbles with Elena, the woman with whom he has been crashing, doing very little to mitigate the bad impression he has already left. Finally aware of just how much trouble he's in, he gets his flier repaired and takes off for the deep woods, intending to do some prospecting until the hue and cry dies down—although his chances of finding anything worthwhile are close to nil. It's hard to see how his luck can get any worse. And yet it does . . .

Setting off a small explosion

meant to break loose a sample for his equipment to assay, Espejo sets off a landslide that reveals an obvious alien artifact—from which a flier quickly emerges to blast his own flier and camp into ashes, then circles back to find him.

Espejo wakes again in darkness, recycling memories from his first awakening. Soon he learns that he has been taken prisoner by the aliens—a powerful species that controls him with a living leash that can deliver intense pain if his alien handler believes he is about to disobey. He emerges from the tank where he has been in suspended animation to be given a task: help his handler, a giant creature called Maneck, track a human being who threatens the secrecy of the alien base.

Espejo is reluctant to help the aliens, in part because he hopes the other person—presumably a cop tracking him because of the murder—will be able to escape and return with help to free him. Playing on the alien's ignorance of human biology and customs, he seizes every opportunity for delay or misdirection so as to give his fellow human the chance to increase the distance between them. However, Maneck prods him forward with pain, and gradually gains ground on the fugitive human, who appears to have been wounded.

Wounded or not, the other human is obviously an experienced frontiersman. He knows how to build a shelter from environmental raw materials, takes care in covering his tracks, and—as Espejo gradually realizes—

strews his trail with the bodies of small animals in hopes of drawing a *chupacabra*, a fierce predator that may attack his pursuers. Espejo's respect for the quarry gradually grows—he realizes that the man thinks a great deal like himself.

Meanwhile, the dialogue between Espejo and Maneck veers between the comic and the outright weird. Espejo's exaggerated macho attitude makes him a decidedly odd spokesman for humankind, especially in his new role as hunting dog for a monster with values even a normal person might not understand, let alone share. But as he works to save the quarry—whom he still believes to be a policeman come to search for him—Espejo begins to take on a more sympathetic aspect.

At the same time, the reader learns something about what makes Maneck and his kind tick. The alien comes from a race that sees its highest purpose as fulfilling one's appropriate role—so that Espejo, in his handler's eyes, should aspire to being the best tracker he can be. We also learn that Maneck's race has come to this world fleeing a terrible enemy.

As the hunt proceeds, Espejo's choices (limited as they may be) become increasingly difficult, especially after he discovers the true identity of his quarry. Always a bit of an opportunist, he now finds himself having to balance moral issues that might challenge a far more sensitive man—although that person might be much harder put just to survive what Espejo is exposed to in his quest. And, as readers of the novella version will recognize, he has plenty of choices to make. What I've summarized so far is probably about a third of the plot of the entire novel, with several major complications yet to come. The book stays tightly fo-

cused on Espejo, with enough drama packed into his story to satisfy the most action-hungry reader.

As with most successful collaborative works, spotting which of the authors is responsible for what is a challenge. It's an easy guess to attribute the references to Espejo's Mexican background to one of the two southwestern residents. The moral seriousness of Dozois's best work is also apparent at several points—but whether those passages are actually his is as much a guess as to which of the authors is responsible for the outdoor survival and tracking lore. In actual fact, if it were too obvious "who did what," the book would be considerably less effective in many ways.

Instead, we've got a rare of achievement: a tensely plotted alien-encounter adventure story with deep insights into the human condition. Highly recommended—and full of interesting twists even if you read the shorter version in these pages.

THE LAST LIGHT OF THE SUN

By Guy Gavriel Kay

Roc, \$16.00 (tp)

ISBN:978-0-143-05148-0

For the last several years, Kay's has been reworking medieval Europe in the fantasy world he began with *Tigana*. The various books in the series are each set in a recognizable region—Provence, Italy, Spain, Byzantium, although the names are different, as are the broad outlines of the culture. It is of course a world where magic works, and where the dominant religion, while institutionally congruent with Christianity, is clearly of quite different origin.

With this volume, he brings the story to the North, with the equivalents of Vikings, Celts, and Saxons, with the main action taking place in the equivalent of Britain. However,

the story begins on an isolated northern island in the Vinmark, where Bern Thorkellson, son of an exile, steals a horse and runs away to find his destiny. He makes for a city of mercenaries, one of whom he must kill to make a place for himself in their company.

Meanwhile, to the south, a group of young men intent on adventure meets an elderly cleric who saves them from making the serious mistake of raiding the farm of a renowned warrior. Taken in as guests at the warrior's insistence, the men end up helping defend their hosts against a raid by a particularly brutal Viking band. In the defense, one of a pair of brothers in the group is killed—and the other, a singer named Alun ab Owyn, finds himself overcome by the need to revenge him.

The third major group of players is at the court of a king, Aeldred, whose career combines aspects of Alfred and Arthur—and who anxiously seeks a way to make his kingdom secure beyond his own life.

Kay brings the three strands together with his usual flair, mixing allusions to history and legend with original invention. Alun and his cleric-mentor Cienion travel to the court of Aeldred, where the cleric takes on a role not quite like Merlin—Kay's use of magic is almost always subtle—and where Alun begins to find a purpose to his life. Meanwhile, Bern is one of a band of Vikings hired for a raid on Aeldred's kingdom—by the same renegade who killed Alun's brother. And Alun discovers an unexpected affinity with the magical beings who inhabit the fringes of the human world—they might be called elves in a more traditional fantasy.

Kay also mixes action and world-building effectively, bringing the characteristic flavor of the societies he portrays into clear relief while providing enough suspense and ten-

sion-release to keep the reader turning pages. He also has a complex enough cast of characters to pull a fair number of surprises out of the background—such as the reappearance at exactly the right dramatic moment of characters the reader thinks have already played their part in the story.

There are few parallels in modern fantasy to the depth and richness Kay has created in this broadly connected group of works—it would be misleading to call it a series, in the usual sense, since the continuing element is the world itself not the characters. Nonetheless, it has greater coherence than many more conventional series because of the author's painstaking world-building.

Also, while Kay has drawn liberally on a large body of existing lore and history, he has done a great deal to bring it alive in a new way. Undoubtedly he learned many valuable lessons working with Christopher Tolkien to edit the *Silmarillion*. But Kay's work clearly stands on its own feet, and at this point the comparison to his illustrious predecessor rests more on the outstanding quality of his prose than on any similarity of material.

The Last Light of the Sun is a pleasure from beginning to end. It confirms the author's status as one of the masters of modern fantasy.

ODYSSEY

By Jack McDevitt

Ace, \$24.95 (hc)

ISBN: 0-441-01422-X

Nominally part of McDevitt's well-received series about Priscilla "Hutch" Hutchins, this novel is a good example of the author's complex blend of hard SF and strong character-driven plotting.

The book starts with a glance at a phenomenon in which ships in distant parts of the galaxy find them-

selves being shadowed by what the press calls "moonriders"—pretty much the equivalent of UFOs.

Then the main plot begins with an encounter on a TV talk show between two characters who will be at the center of most of the action: journalist Gregory McAllister and space pilot Valentina Kouros, a rising Space Academy star. McAllister is an acerbic critic of the effort to colonize space, questioning the value of the effort at the most fundamental level; Kouros is a last-minute recruit to state the Academy's position. At a time when the powers that be seem to share McAllister's position, the show seems to carry added weight, and Hutch is understandably worried about the outcome.

The consequences come sooner than expected when McAllister and Kouros end up on the same ship, sent to investigate the moonrider phenomenon. Also on board is Amy Taylor, the young daughter of a powerful Senator, one of the major critics of the Academy. Hutch, now an academy official, sends them out on what she thinks will be a milk run—a bit of adventure for Amy, as well as a chance to win over McAllister by showing him some of the wonders uncovered in humanity's expansion into space. Mostly because she's the best pilot available for the mission, Kouros is in charge. The fourth passenger is Eric Samuels, an Academy public relations officer fulfilling his lifelong dream of traveling to the stars—exactly the kind of person to rub McAllister the wrong way.

At first the trip seems uneventful, with Amy and Samuels vocally enthralled by everything they see, and McAllister growing progressively more bored—distracted in part by the trial back home of an aggrieved young man named Beemer who has assaulted a preacher. Beemer's defense is that the preacher ruined his

life by teaching him that anyone who strays from the strict doctrine of his sect is doomed to eternal hellfire. McAllister, a firm opponent of religious zealots, has contributed to the Beemer defense, though it looks like an open and shut case if the judge sticks to the facts.

Still, the little expedition goes about its business. They plant detectors at various locations believed to be of interest to the moonriders, and move on. Then, just as they've begun to think the whole exercise is another waste of time, one of the detectors they've left is destroyed. Now they know they're playing for real. The ensuing action becomes a crucible in which each of the passengers is tested, and each has a role to play—right up to the point where the routine patrol becomes a life and death struggle.

McDevitt is on his home court in this one. He shows us a universe where humans are the newest and possibly the weakest of the space-going societies—and likely to do themselves in before the aliens get a chance to stamp out humanity. He could be said to occupy a position in the same region of the hard SF spectrum as Clarke, Niven, and Benford—but with an affinity to the darker visions of John Brunner.

McDevitt won last year's best novel Nebula for *Seeker*, and this book is a good example of why a lot of readers thought he was overdue for the honor. A challenging, very well written novel, with a strong plot and a future that looks way too probable—in short, SF for thinking readers.

BLACK SHIPS

By Jo Graham

Orbit, \$14.95 (tp)

ISBN: 978-0-316-06800-0

This enjoyable first novel is a retelling of the *Aeneid* as a historical fantasy. It is told from the point of view of one of the more important—

and yet largely neglected—characters: the sybil who guides Aeneas through his many trials to his destiny as the founder of a new empire.

Gull is born into slavery in Pylos, the daughter of a woman raped and taken captive during the sack of Troy. Crippled in an accident at an early age, Gull is taken by her mother to become the apprentice of Pythia, the sybil who lives in a cave above Pylos. It is one of the few alternatives for a slave who cannot work the flax fields. There she learns the trade of a prophetess, and reaches maturity as a valued member of the community—even though her position requires she remain an outsider, living apart from the others in the cave where she receives her visions.

Her life changes when, with the local men away on a raid, their town is attacked by raiders Gull recognizes as fellow exiles from Troy, led by Aeneas himself. She steps in to stop the killing before it gets out of hand, then organizes the evacuation of her fellow exiles onto the handful of ships in the raiding party. Their long voyage in search of destiny has begun.

In Graham's hands, the body of the story turns into a guided tour of the Homeric world as archaeologists now conceive it. The reader gets a close look at the societies of the Greek mainland, of Asia Minor, of the Phoenicians who would later be the founders of Carthage, of Egypt at the height of its powers, and of pre-Roman Italy. Each offers its challenges to the Trojan exiles—challenges compounded by the young king of Pylos, Neoptolemos, who follows them seeking revenge for their escape.

Having regained her freedom, she also begins to break away from her former isolation, making herself part of a necessarily tight-knit shipboard community with her fellow exiles. She also finds herself drawn to the Trojan men. Nothing in her pact

with the goddess requires her to give up male company, and she eventually bonds with Xandros, captain of the ship she sails on, and Aeneas' closest friend. Still, she retains the ability to foresee the future—and guides Aeneas to his proper destiny at several key points.

Probably the biggest single adjustment Graham makes to Virgil's epic plot is the substitution of Egypt for Carthage. Virgil's reason for having Aeneas fall in love with—and finally abandon—Dido, a Carthaginian queen, had to do with Roman history, in which Carthage was the ancient and nearly successful rival to his nation's rise to world power. However, it is now thought that Carthage was of no significance, if it had been settled at all, at the time the Trojan War probably occurred. Egypt, on the other hand, was the reigning world power under the hand of Ramses III, one of the greatest Pharaohs—and both exotic enough and seductive enough to offer a real challenge to the exiled Trojans' journey. Graham takes the real-life Ramses' defeat of sea raiders in a massive battle as the means to give her Trojans an entrée into the Egyptians' favor.

Possibly because of the decreasing importance of Latin in the modern educational system, the *Aeneid* is considerably less familiar to most modern readers than either the *Iliad* or the *Odyssey*, Homer's two great epics. Not having read any of the three in the original, I'm not in a position to give more than a cursory opinion—but it has always seemed to me that Virgil's work lacked the vigor of his Greek predecessor. Be that as it may, Graham has used the tale of Aeneas and his fellow exiles as the framework of a highly readable historic fantasy, with strong characters and excellent recreation of the dawn of Mediterranean civilization. Well worth a read. ○

SF CONVENTIONAL CALENDAR

The membership rate for the World SF Convention in Denver this August goes up July 10th; so join right away. Plan now for social weekends with your favorite SF authors, editors, artists, and fellow fans. For an explanation of con(vention)s, a sample of SF folksongs, and info on fanzines and clubs, send me an SASE (self-addressed, stamped #10 [business] envelope) at 10 Hill #22-L, Newark NJ 07102. The hot line is (973) 242-5999. If a machine answers (with a list of the week's cons), leave a message and I'll call back on my nickel. When writing cons, send an SASE. For free listings, tell me of your con 5 months out. Look for me at cons behind the Filthy Pierre badge, playing a musical keyboard.—Erwin S. Strauss

JUNE 2008

- 25-29—Origins. For info, write: 280 N. High #230, Columbus OH 43215. Or phone: (614) 255-4500 (voice) (8 AM to 6 PM, not collect). (Web) originsgamesfair.com. (E-mail) registration@gama.org. Con will be held in: Columbus OH (if city omitted, same as in address) at the Greater Columbus Convention Center. Guests will include: Steve Jackson. Big game con.
- 26-29—MidWestCon. (513) 922-3234. cfg.org. Doubletree, Sharonville OH. Relax-a-con (with dealers and art show).
- 27-28—TrekFest. (319) 648-5475. trekfest.com. Hall Park, Riverside IA. Town fair at "James T. Kirk birthplace."
- 27-29—ApolloCon. apoloonline.org. Houston TX. Allen Steele, Lou Anders, Anne K.G. Murphy. SF, fantasy and horror.
- 28-29—ConRunner. conrunner.org.uk. Britannia Hotel, Wolverhampton UK. Where convention organizers talk shop.

JULY 2008

- 3-6—WesterCon. westercon61.org. Marriott, Las Vegas NV. Kage Baker, Lubov. Milt Stevens. The big western con.
- 3-6—Anime Expo. (714) 937-2994. anime-expo.org. Convention Center, Los Angeles CA.
- 4-6—InConJunction. inconjunction.org. Sheraton, Indianapolis IN. Guests to be announced.
- 4-6—ConVergence. convergence-con.org. Sheraton Bloomington, Minneapolis MN. Bernie Wrightson, David Weber.
- 10-13—Portus. portus2008.org. Hilton Anatole, Dallas TX. For fans of the Harry Potter books and films.
- 11-13—LibertyCon, Box 695, Hixson TN 37343. (423) 893-7979. libertycon.org. Comfort Inn, E. Ridge TN. Turtledove.
- 11-13—Shore Leave, Box 6809, Towson MD 21285. (410) 496-4456. Marriott, Hunt Valley (Baltimore) MD. Media SF.
- 11-13—Polaris, Box 7097, Toronto ON M5W 1X7. (416) 410-8266. tcon.ca. Doubletree. Rachel Luttrel. Media SF.
- 11-13—SF Resarch Assn., 1515 Andrews Dr., Lawrence KS 66047. sfa.org. U. of KS. Fowler, Kincaid. Academic.
- 11-13—OSFest, 7934 Grover, Omaha NE 68124. osfes.org. Comfort Inn. Aaron Allston. Gaming, anime, panels, art.
- 12-13—Bad Wolf. tenthplanet.co.uk. Metropole, Stoke-on-Trent UK. Peter Davison, Georgia Moffett, Anthony Head.
- 17-20—ReaderCon, Box 381246, Cambridge MA 02238. readercon.org. Boston area. Kelley, Lethem. Written SF/fantasy.
- 17-20—NECon. necon.org. Roger Williams University, Bristol RI. The New England writers' conference.
- 18-20—Lazy Dragon Con, 420 Twin Knoll Dr., McKinney TX 75071. (972) 948-3320. lazydragoncon.com. Relaxacon.
- 18-20—VidCon. vidcon.org. St. Petersburg FL. Media oriented. For those of alternative sexuality (GLBT) and friends.
- 18-20—Dark Shadows, Box 92R, Maplewood NJ 07040. darkshadowsfestival.com. Marriott, Burbank CA. The TV show.
- 23-27—ComicCon, Box 128458, San Diego CA 92112. (619) 491-2475. comic-con.org. Convention Center. Huge event.
- 24-27—Dum-Dum, c/o 313 E. 5th, Waterloo IA 50703. erzbine.com. Ramada. Edgar Rice Burroughs fans' annual meet.
- 25-27—ConFluence, Box 3681, Pittsburgh PA 15230. (412) 344-0456. Doubletree, Moon Township PA. Joe Haldeman.
- 25-27—ConEstoga, Box 700776, Tulsa OK 74170. (918) 445-2094. sftulsa.org. D. Gabaldon, S. Hickman, Tim Miller.
- 25-27—Finland Nat'l. Con, c/o TSFS, PL 538 Tampere 20101, Finland. finncon.org. Charles Vess, Petri Hiltunen.

AUGUST 2008

- 6-10—Dervention 3, Box 1349, Denver CO 80201. dervention3.org. Bujold, Sternbach, Whitmore. WorldCon. \$200.

AUGUST 2009

- 6-10—Anticipation, CP 105, Montreal QC H4A 3P4. anticipationst.ca. Gaiman, Hartwell, Doherty. WorldCon. US\$190.

CLASSIFIED MARKETPLACE

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ANNOUNCEMENTS

Alaska Writers Guild Speculative Fiction Conference October 1-5, 2008 Anchorage. Three plus days of workshops with top-notch writers, agents, and editors of speculative fiction. Most meals included. For more information, visit www.alaskawritersworkshop.com or call (907)783-0106

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NEXT ISSUE

SEPTEMBER ISSUE

Our September issue features the welcome return of **William Barton**, with a new tale set in the sad, beautiful, uncertain future of his acclaimed novels *When We Were Real* and *Acts of Conscience*. An augmented human given the wrong end of the stick by the Standard ARM conglomerate gets a chance to finally turn the tables on his cut-throat employers when he uncovers a mysterious alien vessel during a routine expedition. "In the Age of the Quiet Sun" is Barton at his adventurous best, proving once again that he's one of the best hard science fiction writers in the business today.

ALSO IN SEPTEMBER

September also contains **Will McIntosh's** second story for *Asimov's*, in which a young boy, eager to absorb the fabulous powers granted the finders of mysterious spheres hidden around the world, encounters the rarest sphere of all: the "Midnight Blue"—what happens thereafter will charm and delight you, and certainly makes this tale a solid contender for next year's Readers' Award; **Stephen Baxter** plays with [un]history as unlikely heroes Hobbes, Defoe, Newton, and Swift go toe-to-protuberance with chilly invaders from outer space in "The Ice War"; **Robert R. Chase** examines the difficult rehabilitation of a fanatical "Soldier of the Singularity"; **Mary Rosenblum** pens a pointed tale exploring the effects of high-powered handicapping on unsuspecting children in "Horse Racing"; UK talent **Ian Creasey** suggests the uncomfortable limits of parent/child obligation after a consciousness-upload in "Cut Loose the Bonds of Flesh and Bone"; **Derek Zumsteg**, making his *Asimov's* debut, contributes an uncomfortable vision of teen athletes of the future in "Usurpers"; and **Steven Utley** takes us right down deep into "Slug Hell."

OUR EXCITING FEATURES

Robert Silverberg celebrates "Another Thirtieth Anniversary" in his "Reflections" column; **Paul Di Filippo** presents "On Books"; plus an array of pleasant poetry by many of your favorite poets. Look for our September issue at your newsstand on July 29, 2008. Or you can subscribe to *Asimov's*—by mail or online, in varying formats, including downloadable forms, by going to our website, www.asimovs.com—and make sure that you don't miss any of the great stuff we have coming up!

COMING SOON

new stories by **Nancy Kress**, **Brian Stableford**, **Melanie Tem & Steve Rasnick Tem**, **Carol Emshwiller**, **Ian R. MacLeod**, **Leslie What**, **Jack McDevitt**, **Larry Niven**, **Geoffrey A. Landis**, **Robert Reed**, **Jack Skillingstead**, **Steven Utley**, **Gord Sellar**, **Brandon Sanderson**, and many others. . . .

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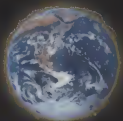


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